ABSTRACT

Title of Dissertation:	UNDERSTANDING THE UNTHINKABLE: A COMPARATIVE ANALYSIS OF MASS SHOOTERS, HOMICIDE OFFENDERS, AND VIOLENT EXTREMISTS USING CRIMINOLOGICAL THEORY
	Yesenia Yanez, Doctor of Philosophy, 2024
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As mass shootings continue, the need for more theoretically driven solutions grows. Criminologists can offer tremendous insight, though they should be wary of applying existing theories to this relatively new phenomenon. In this dissertation, I explore how mass shootings fit into our understanding of crime and violence. I begin by describing mass shooter demographics and motives over time. I then compare mass shooters to homicide offenders and violent extremists. Focusing on social control and general strain variables, I find that mass shooters are significantly different than single-victim homicide offenders in terms of common correlates of crime. Mass shooters and violent extremists, on the other hand, show fewer differences and greater definitional overlap. Finally, I consider how mass shooting definitions shape our perception of mass shooters. Considering these results, I conclude that a mass shooter's path to violence does not resemble that of a common homicide offender but rather one of a violent

extremist. Future scholars can thus reimagine existing criminological theories to help explain mass shootings and provide solutions that are more appropriate.

UNDERSTANDING THE UNTHINKABLE:
A COMPARATIVE ANALYSIS OF MASS SHOOTERS, HOMICIDE OFFENDERS, AND VIOLENT EXTREMISTS USING CRIMINOLOGICAL

by

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Dissertation submitted to the Faculty of the Graduate School of the
University of Maryland, College Park, in partial fulfillment
of the requirements for the degree of
Doctor of Philosophy
2024

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Acknowledgements

I would first like to thank all the mentors I have had throughout my academic career. David Pillow, thank you for introducing me to the world of research and for always making me feel confident in my work. Laura Dugan, thank you for the encouragement and guidance you provided me during the most challenging times in graduate school. Lauren Porter, thank you for always being a comforting presence and for being the person I can come to about anything. Gary LaFree, thank you for all your wisdom and for the continuous care and support you have provided me. Working with each of you has deeply impacted who I am as a scholar. Working with you all has been an honor.

I would also like to thank the McNair Scholars Program and UTSA's Mellon Pathways program. As a first-generation college student, higher education felt like a maze that only a lucky few were given a map to. Programs like McNair and Mellon evened the playing field by teaching me how to navigate the academic and professional world while providing enriching experiences I would have otherwise never had. Darrell Balderrama and Sonia Valencia, thank you for the care you put into coordinating every McNair activity. You two have a very special place in my heart.

I also would like to thank my committee and all the professors who have made a special impact on my education: David Cunningham, Ann Eisenberg, Dylan Jackson, Michael Jenson, Jerome Keating, Greg Midgette, Lauren Porter, Sarah Tahamont, and Maria Velez.

Thank you to my parents and all the parental figures I have gained over the years. Mom, you are the voice in my head that pushes me to be the best version of myself. Thank you for passing down your drive and ambition. Dad, you are my biggest cheerleader. Thank you for teaching me to be patient with myself and for always making me feel like the most accomplished person.

Finally, I would like to thank my husband, Jacob Thornbury. From shoulder rubs to brainstorming research ideas, you have consistently been the source of my strength. For almost ten years now, you have been by my side for the highs and lows. Thank you for being my partner and thank you for supporting me throughout this journey.

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Chapter 1: Introduction

What leads an individual to take aim at a crowd of strangers with the goal of killing as many as possible? As more individuals fall victim to mass shootings, researchers should make greater efforts to answer this question in hopes of offering effective policy recommendations. While mass casualty events can take various forms, mass shootings have become an increasingly common part of contemporary American life. I argue that the best way to address the United States' mass shooting problem is to study its etiology and generate preventative measures that target the causes. Several criminological theories discuss the etiology of such violent behavior. However, despite receiving increasing attention in recent years, mass shooting research remains relatively undertheorized.

Understanding mass shootings may not require an entirely new line of inquiry as existing theories, like strain or control theories, can offer some insight. Notably, Gottfredson & Hirschi (1990) reason that while not all crimes are alike, distinctions among crime types are "irrelevant or misleading" (p.43) as general theories of offending should be able to explain all forms of crime, including mass shootings. However, I argue that to understand mass shootings better, it is nonetheless important to assess the differences between them and more typical forms of crime like ordinary homicide. Likewise, it is important to understand how mass shootings relate to the most extreme forms of violence studied by criminologists, like terrorism. These distinctions can guide scholars into reimagining or adapting existing solutions to combat mass shootings. In this dissertation, I assess the heterogeneity of mass shooters and test whether their backgrounds significantly differ from offenders of single-victim homicides and violent extremist attacks in terms of commonly theorized correlates of crime.

A crucial step in understanding mass shootings is to address the issue of defining them. Despite growing discussion, there is no universal definition of a mass shooting. As I later discuss in more detail, this is a major challenge to studying the phenomenon as it introduces variability in definitions and the use of seemingly arbitrary casualty thresholds. Considering this issue, I also assess the impact of varying definitions on mass shooting estimates and study samples.

Definitional issues aside, it is clear that mass shootings have become a growing American problem with research showing that they are increasing in prevalence and lethality (B. Berkowitz et al., 2019; Densley & Peterson, 2019). While other forms of mass killings, such as familicides, were common in the early 1900s (Duwe, 2004), some claim that the first modern mass shooting in America was the 1966 University of Texas (UT) watchtower shooting in which an ex-Marine climbed to the top of the university's watchtower killed 15 people below (Austin History Center, 2016; McGraw, 2022).

Since then, the problem has grown, with mass shootings becoming more common and, unfortunately, far more deadly (B. Berkowitz et al., 2019; Densley & Peterson, 2019; Lankford & Silver, 2020). In fact, the deadliest mass shooting in the United States to date took place in 2017. Eerily reminiscent of the 1966 UT massacre, the 2017 Las Vegas shooting involved a man positioning himself at an elevated vantage point and shooting down toward a crowd of potential targets. Unlike the UT shooter, this shooter planned extensively, brought an arsenal of weapons, and rigged the building's 32nd floor with cameras to delay capture. This plot resulted in the death of 58 individuals and the injury of almost 900 more (Peterson & Densley, 2020). As these devastating events continue to occur and offenders prolong their rampages, the need for empirical research and well-informed intervention grows.

The Significance of Mass Shootings

Mass shootings have a substantial impact on individuals, communities, and the nation as a whole. As they continue to occur in schools, grocery stores, movie theaters, restaurants, offices, and elsewhere, Americans are experiencing growing fear, anxiety, and collective trauma (Abrams, 2022; Thompson et al., 2019). For instance, a national APA survey reports that 75% of Gen Z cite mass shootings as a significant source of stress (American Psychological Association, 2018). Unfortunately, this anxiety follows youth into the classroom, where they spend most of their time, with 56% of Gen Z students reporting that they have experienced stress with the possibility of a shooting at their school (American Psychological Association, 2018). Another survey found that majority of U.S. adults also report feeling stressed about mass shootings, with 30% saying that fear of another mass shooting stops them from attending certain events or visiting certain locations (American Psychological Association, 2019). Further, various reports show that defensive behaviors increase in the wake of mass shootings as many Americans resort to buying firearms for protection (Laqueur et al., 2019; Pak, 2022; Studdert et al., 2017; Wallace, 2015).

These emotional and behavioral effects can also have economic consequences. In a recent study, Brodeur and Yousaf (2022) compare mental health changes in counties that experienced mass shootings to those that did not. Their analysis reveals that residents in counties that experience a mass shooting report poor mental health, which hinders usual activities such as work. In fact, Clark and Stancanelli (2017) find an average decline in work of over half an hour per day. Further, Brodeur and Yousaf (2022) discover that mass shootings influence local labor markets by reducing earnings by two percent and decreasing employment by one percent. In all, these findings suggest that mass shootings decrease productivity and thus negatively affect local economies.

While it is clear that mass shootings can affect the entire nation, those who have directly experienced an event may suffer the most trauma. Shultz et al. (2014) and Wilson (2014), for instance, find that the severity and proximity of exposure to a mass shooting predict mental health problems That is, individuals closer to the event are more likely to experience post-traumatic stress (Mercer et al., 2012). Further, survivors of mass shootings experience a host of negative mental health issues, such as post-traumatic stress disorder, major depression, social phobia, and panic disorder (Cimolai et al., 2021; Lowe & Galea, 2017; Shultz et al., 2014).

Researchers can too easily view mass shootings as simple statistics and forget about the humans behind each fatality count. Based on one estimate (Gun Violence Archive, 2023b), more than 640 individuals died at the hands of mass shooters in 2022 alone - each victim representing a community, a family, and loved ones that are devastatingly impacted by the actions of a malicious actor. A rare study (Cacciatore & Kurker, 2020) that interviewed several victims of the 2012 Sandy Hook mass shooting offers insight into the potential severity of this impact. One participant recounts the inconsolable grief she experienced in the days following the news that her child had died in the shooting:

> *"I wanted to die. I wanted to vomit. I wanted to scream. It was such intense emotion that I never experienced before. And I had no idea what to do with it. And I just remember violently turning over and over in her covers and trying to wrap myself in her blankets and her pillows…I remember crying and just sick to my stomach, thinking I should get out of here in case I throw up. I don't want to ruin her bed's smell"* (Cacciatore & Kurker, 2020, p. 9)

All parents who participated in the study echoed this intense grief and claimed that it remained high almost five years after the loss of their children. In this sample, the emotional and physiological effects of the shooting included rage, guilt, despair, fear, yearning for lost loved ones, feeling physical pain, weight loss or gain, impaired memory, disruption in sleep patterns, and diminished clarity. The participants emphasized that inadequate or inappropriate community responses may have heightened their symptoms of emotional distress.

Considering their emotional, psychological, behavioral, and economic consequences, mass shootings are clearly an important social problem. Unfortunately, to this point in time, the United States has been unsuccessful in implementing effective countermeasures. For instance, political polarization, along with the influence of gun lobby groups, have hindered several attempts to implement universal background checks (Ax & Raymond, 2024; Blake, 2013; Gonzales, 2016; Nadeem, 2021; Vernick et al., 2017). While some scientists argue that gun control policies like this may reduce mass shootings (Nagin et al., 2020; Webster et al., 2020; Zeoli & Paruk, 2020), Kleck (2009) argues that gun control efforts after mass shootings are "largely irrelevant" and "almost certainly could not have prevented the incidents." Likewise, gun rights advocates instead point towards other issues such as mental health or violent media as the root cause of mass shootings (Anderson, 2019; Cathey, 2023; Dey & Fechter, 2023). While debates surrounding gun control, violent video games, bullying, and mental health arise after each new attack, these conversations seem to rapidly dwindle with little to no results until the next mass casualty event. Conflicting political interests aside, this inaction is perhaps the result of trying to create a solution to a problem that is not yet fully understood. To recommend effective policies, scholars must act to fill the various gaps in the mass shooting research literature.

Challenges to Studying Mass Shootings

Criminologists study "the breaking of laws and reactions to the breaking of laws" (Sutherland & Cressey, 1978, p. 3). Despite mass shootings falling under this scope of work, top-tier criminology journals often overlook the topic. In fact, a meta-analysis reveals that although the field's interest in mass shootings has grown in the past decade, only 28.8% of 73 peer-reviewed mass shooting articles published between 1999 and 2018 appeared in criminology/criminal justice journals (Kim et al., 2021). The remainder of the articles reviewed in the meta-analysis came from journals in psychology, health/medicine, communication, sociology, social sciences, and other fields.

The act of one person killing another has been a topic of empirical research for decades. Although mass shootings are a type of homicide, the criminological literature on mass shootings is smaller and newer than the research on more traditional forms of murder. This is in part because mass shootings, usually defined as high-casualty events in public spaces, are a relatively new phenomenon (Duwe, 2004). Aside from its recency and statistical rarity, there are at least two specific factors that have contributed to the gaps in the mass shooting research literature.

First, there is no universal definition of mass shootings. Government agencies, mass shooting databases, and academic scholars use their own parameters to investigate the phenomenon. I reason that a good starting point is to use the definition of mass *murder*, which the FBI defines as the killing of four or more individuals during the same incident (Federal Bureau of Investigation, 2008). Of course, this definition encompasses crimes outside of mass shootings as it does not specify weapon type. For example, driving a vehicle through a crowd of people and killing four or more would be classified as a mass murder but not a mass shooting. Thus, many use this definition as a foundation and define a mass *shooting* as the killing of four or more people, not including the offender, with the use of a firearm (Peterson & Densley, 2023; Silva & Greene-Colozzi, 2020; USA Today, 2022). Further, many apply other conditions to this definition by arguing that mass shootings (1) must occur in public and (2) cannot be attributable to gang activity or other forms of crime, such as robbery (Follman et al., 2020; Ledur, 2023; Peterson & Densley, 2023).

Some scholars, however, disagree with this definition and claim that imposing a criterion based on fatalities is too restrictive. Instead, they use a definition of mass shooting based on total victims regardless of death and thus argue that mass shootings are events in which four or more people, excluding the shooter, are shot but not necessarily killed (Everytown, 2023; Follman et al., 2020; Gun Violence Archive, 2023b). The Gun Violence Archive (GVA) is the most popular database using this definition. As a result, GVA estimates of mass shootings are consistently higher than other databases. For instance, the GVA reported 646 mass shootings in 2022 (Gun Violence Archive, 2023b). The Violence Project, on the other hand, which uses a four or more killed criterion, reported only seven mass shootings in 2022 (Peterson & Densley, 2023). Undoubtedly, differing definitions of mass shootings significantly impact estimates and the public's perception of their prevalence (Smart & Schell, 2021).

The second challenge researchers must face is data availability. Studies of crime rely on either official or unofficial data. Official crime data refers to information collected by law enforcement agencies. Thus, these data offer information on crimes known to police. The Uniform Crime Reports and the National Incident-Based Reporting System (NIBRS) are the two main sources of official crime data in the United States. On the other hand, unofficial data rely on self-reported or researcher-coded information. Criminologists commonly use surveys like the National Crime Victimization Survey or the National Youth Study to study crimes that are not captured by official reports. Needless to say, both data types have strengths and weaknesses, and both are needed to create a comprehensive view of crime. Without official data, scholars must rely on the word of a potential offender or victim, and without unofficial data, scientists miss a sizable portion of offenses that are not reported to police.

In the mass shooting literature, social scientists also rely on databases composed of open sources such as media reports, biographies, or court records. While databases like these may make use of official police records, the majority of information typically stems from unofficial secondary data sources. After all, police reports can only offer so much in terms of offender and victim backgrounds. However, dependence on media sources (i.e., news articles) may result in reliability and accuracy issues, especially for lesser-known shootings. For instance, well into a month after the highly-publicized 2013 Sandy Hook mass shooting, reports by NBC and the New York Times had conflicting information about the offender's weapons (Huff-Corzine et al., 2014). Thus, mass shooting databases relying primarily on the media may benefit from supplementary data sources like the UCR or NIBRS.

Further, despite the growing number of publicly available databases, different collection methods also lead to conflicting estimates of mass shootings. The Gun Violence Archive, for instance, automatically queries 7,500 sources daily for gun violence incidents. Two researchers then verify the incidents (Gun Violence Archive, 2023a). The Violence Project, on the other hand, employs two coders to research each incident. The results produced by each coder are then compared, merged, and flagged for discrepancies. Primary investigators reconcile discrepancies and fact-check information before returning the data to the original coders for a second independent check. Finally, a database manager conducts a comprehensive final check before publishing (Violence Project, 2024). Using dissimilar sources and different research methods may contribute to discrepant information. For instance, Booty et al. (2019) compare four sources of mass shooting data and find that only two of over 300 collectively reported events are found in all four datasets. These discrepancies are troubling as they may produce different empirical conclusions for each study.

Because the primary goal of this dissertation is to study mass shootings and their place in criminology, it is important to address these challenges. For these analyses, I use several databases but primarily rely on the Violence Project's Mass Shooter Database for mass shooter information. Although I begin with their strict definition of mass shootings, in later analysis, I consider the implications of relaxing their inclusion criteria on mass shooting estimates and study samples.

Using the Violence Project's Mass Shooter Database -the most detailed U.S. mass shooter database to date - allows me to address the data availability issue. This database defines mass shootings as events with four or more victim deaths in public that cannot be attributable to other criminal activity. Importantly, imposing a high fatality count threshold makes it likely that more complete information is available for each event and offender, as media coverage is typically greater for killings with more fatalities (Schildkraut et al., 2018). The Violence Project claims to use both official and unofficial sources, including, but not limited to, news reports, suicide notes/manifestos, police reports, court transcripts, autopsy reports, school records, interview transcripts, and FBI Uniform Crime Reports. Despite the limitations posed by its strict definition, the Violence Project provides one of the most comprehensive existing data sources by offering cross-referenced data on events, shooters, victims, weapons, and communities.

The Current Study

The goal of this dissertation is to contribute to our understanding of mass shootings and their place in criminology. Specifically, I aim to 1) describe mass shooter profiles and their changes over time, 2) incorporate criminological theory to compare mass shooters to more typical homicide offenders, 3) incorporate criminological theory to compare mass shooters to violent political extremists, and 4) assess how mass shooting definitions change the target population of perpetrators being studied.

In the following chapter, I describe perpetrators of mass shootings and explore the heterogeneity that exists among them. As experts begin to adopt a public health approach to violence prevention, it is important to focus on the individual-level of analysis. I argue that effective prevention measures require a deeper understanding of who is most likely to engage in mass shootings and why. Thus, this type of analysis is critical in formulating empirically informed prevention programs.

While there may be numerous similarities, not all mass shooters are alike or fit a certain profile. Mass shooters are typically characterized as predominately white males who perpetrate their crimes alone (Capellan & Gomez, 2018; Duwe, 2004; J. A. Fox & Levin, 1998). Recent studies, however, indicate that mass shooters have been evolving with significant increases in demographic heterogeneity (Capellan & Gomez, 2018; Duwe, 2004). For instance, Capellan and Gomez (2018) find that, compared to mass shooters in the 1980s and 1990s, perpetrators today are more racially diverse. They also confirm a shift in the characterization of mass shooters by finding that modern perpetrators are significantly more likely to be married, have a college education, and be employed, than ones from the 1980s and 1990s.

Mass shooters not only exhibit diversity in terms of demographics but also in terms of motives. Over the years, mass shooters have reported several motives for their crimes ranging from revenge and ideological hate to mental illness and fame-seeking (Capellan & Gomez, 2018; Lankford & Silver, 2020; Osborne & Capellan, 2017). For instance, before killing his wife and committing his mass shooting, the 1966 UT shooter wrote a suicide letter claiming to be a "victim of many unusual and irrational thoughts" and noted:

> *"It was after much thought that I decided to kill my wife, Kathy…I love her dearly, and she has been as fine a wife to me as any man could ever hope to have. I cannot rationaly [sic] pinpoint any specific reason for doing this."* (Whitman, 1966).

While the UT shooter's motives may seem unclear to him, the perpetrator of the 2019 El Paso Walmart shooting was well aware and explicit about his motivations. Before his crime, the El Paso shooter released a 2,300-word manifesto citing his hate for Mexican immigrants and his fear of a "Hispanic Invasion of Texas" as the reason for his massacre (Arango et al., 2019). Anecdotal evidence like this suggests that mass shooters have unique motivations for committing their crimes. I argue that understanding the heterogeneity of these motives and how they change over time is vital to enhancing etiological theories and finding the most appropriate policy responses.

In Chapter 3, I present various theoretical arguments regarding mass shootings and their place among other violent crimes. Namely, I implement existing classifications and criminological theory to depict how mass shooters compare to offenders of (1) a violent crime that is popularly studied by mainstream criminologists (single-victim homicides); and (2) a violent crime that is similarly an outlier of the field (violent political extremism). These comparisons are important because they can inform the use of existing preventative measures for mass shootings. For instance, millions of dollars are spent annually to develop violence prevention programs in the U.S (White House Office of Management and Budget, 2024). The current study can shed light on whether mass shootings are similar enough to other forms of violence to consider leveraging these programs to address this issue.

For reasons previously discussed, the mass shooting literature lacks the same level of empirical examination found in traditional homicide studies. Previous studies, for instance, reveal that social factors like deprivation, collective efficacy, social disorganization, and patterns of routine activities play a significant role in homicide rates (J. A. Fox & Piquero, 2003; Hansmann & Quigley, 1982; Maume & Lee, 2003; McCall et al., 2008; Messner & Blau, 1986; Messner & Tardiff, 1985; Morenoff et al., 2001; Pratt & Godsey, 2003). Likewise, several criminologists have identified micro-level risk factors for homicide such as conduct disorder, drug use, poor academic performance, low socioeconomic status, gang involvement, and exposure to violence (Ahonen et al., 2016; Botelho & Gonçalves, 2016; Loeber et al., 2005).

I argue that despite mass shootings being a form of homicide, we should be cautious about generalizing the conclusions of homicide research to mass shootings. For example, prior research (Fox & Levin, 2022; Lankford et al., 2019; Lankford & Silver, 2020; Silva, 2020) shows that mass shooters plan their attacks for longer than homicide offenders, are more likely to commit their crimes for fame, and are more likely than homicide offenders to victimize strangers. While these findings suggest that mass shooting events are different from typical homicides, the extent of these differences is unknown as very few researchers have empirically compared the two phenomena.

I am aware of only two studies that comparatively explore mass shootings and homicide offenders in the United States (Fridel, 2022; Lankford et al., 2021). These studies, however, are limited to basic offender characteristics. I expand on past analyses by including characteristics that are commonly cited by social control and strain theories. I focus on the offender's military history, educational background, employment, childhood socioeconomic status, parental drug and criminal history, history of abuse, and other key demographic variables. To obtain such detailed information, I use the Violence Project's Mass Shooter Database and the Bureau of Justice Statistics' Survey of Prison Inmates. The results of these analyses are presented in Chapter 4.

By examining more extensive individual-level characteristics, I can determine to what extent mass shooters, as defined by the several strict conditions, are different from single-victim homicide offenders. Further, by pulling variables from common criminological theories like social control and strain, I can assess their relative applicability to mass shootings. This line of inquiry can help fine-tune existing theory and inform policy.

In Chapter 5, I compare mass shooter backgrounds to those of political violent extremists. Like mass shootings, violent extremist attacks are crimes that are often perceived very differently than those studied in mainstream criminology. Nonetheless, social scientists have managed to integrate the study of terrorism into the field of criminology through decades of research. In fact, criminological research on political extremism is arguably the fastest-growing specialization in the field (Freilich & LaFree, 2015; LaFree & Yanez, 2023; Sageman, 2014). With scholars reimagining and adapting existing criminological theories to explain violent extremism, I argue that mass shootings can be given a similar treatment.

Using data from the Violence Project and the Profiles of Individual Radicalization in the United States (PIRUS), I compare mass shooters to failed and successful mass casualty violent extremists. Like with the comparison of homicide offenders and mass shooters, I focus on the background characteristics of these offenders to identify distinctions in their paths to violence. Understanding where mass shooters fall among typical homicide offenders and more extreme radicalized offenders is vital in generating tailored theoretical explanations and efficient policy recommendations.

Finally, in Chapter 6, I explore how mass shooting definitions shape cases classified as mass shootings. Mass shooting definitions vary widely and there is minimal consensus on what conditions a crime needs to meet to be considered a mass shooting. Even more, Huff-Corzine and Corzine (2020) argue that imposing a standard definition for mass violence would be counterproductive as it may stifle research and policies. Indeed, classifying and distinguishing offenders based on elements of their crime reduces their heterogeneity. Nonetheless, I argue that imposing definitions, especially ones using quantifiable conditions, is a necessary step to identifying and addressing the mass shooting problem.

Considering the debate, it is important to gain a deeper understanding of how mass shooting definitions can change who gets included in an offender pool and, consequently, a study's conclusions. While the main analyses of this dissertation compare three strictly defined and mutually exclusive offender groups, the final analysis focuses on the gray area that exists between groups. Using official crime data from the National Incident-Based Reporting System (NIBRS), I identify several distinct homicide offender groups based on how closely they come to being defined as a mass shooter. Replacing the commonly used Uniform Crime Reports, NIBRS is the only current source of official U.S. national crime data with the power to identify mass shooters based on common criteria. Accordingly, while mass shooting studies traditionally rely on open-source databases, NIBRS may offer criminologists a new, yet familiar, tool for producing mass shooting estimates. This analysis thus not only contributes to the conversation about mass shooting definitions but also evaluates NIBRS' use in future mass shooting studies.

In short, this dissertation proceeds as follows. In Chapter 2, I dive deeper into what we know about mass shooters and mass shooting trends over time. In Chapter 3, I discuss the criminological theories guiding the analyses. I begin that chapter by defining mass shootings and theorizing about the implications of this definition. After this, I try to place mass shootings in the context of criminological theory and examine how they compare to other forms of violence. Explicitly, I explore social control and strain theories and consider how key variables may appear differently among the two groups. For each key variable, I list hypotheses to be tested in the subsequent chapters.

In Chapter 4, I offer descriptive statistics for homicide offenders and provide the results of several statistical tests to determine whether they significantly differ from mass shooters. In Chapter 5, I present the results of statistical tests assessing whether mass shooters significantly differ from violent extremists. In Chapter 6, I explore how mass shooting criteria can shape a pool of offenders. Finally, in Chapter 7, I conclude with a brief overview of this dissertation, its strengths, limitations, and implications for future work.

Chapter 2: Describing Mass Shooters

To better understand mass shootings and their place in criminology, it is crucial to better understand the perpetrators of these crimes. Because definitions of mass shootings vary, a singular mass shooter profile is difficult to come by. Nonetheless, there are numerous studies that can shed light on the perpetrators of mass shootings and similar crimes. For instance, the FBI recently released a report on active shooters in the United States (Silver et al., 2018). For this report, active shooter refers to an individual who is actively killing or attempting to kill people in public with a firearm. The FBI reports 63 active shooters between 2000 and 2013, 94% were male and 63% were white. The shooters had an average age of 37.8 with the youngest being 12 and the oldest being 88 years old. Although 36% of adult shooters had unknown education levels, only 7% did not have a high school degree. Of adult shooters, 38% were unemployed and 24% had some military experience. Finally, 8% of active shooters were married at the time of their crime and 35% adult shooters had at least one prior conviction.

Importantly, the authors stress that, aside from gender, there is not enough homogeneity in demographic characteristics to create a mass shooter profile. That is, active shooters are quite diverse in terms of traits and backgrounds. Even studies using different definitions of mass shootings find this heterogeneity. Gill et al. (2017) define mass shootings as public incidents in which a single perpetrator kills four or more victims. Of the 115 mass murderers between 1990 and 2014, only three were female; 24% of this sample had some college education, 28% were unemployed, and 17% were married. Further, 43% held a prior criminal conviction – an estimate close to that of the FBI report. Notably, like in the FBI report, Gill et al. explain that mass murderers “display no discernable sociodemographic profile” (2017, p. 714).

Mass shooters are not only diverse in terms of demographics; Mass shooter motives also vary widely. For instance, the FBI reports that active shooters were experiencing a variety of stressors in the year before their attack. The most common stressors were mental health related (experienced by 62% of shooters), financial strain (experienced by 49% of shooters), and job related (experienced by 35% of shooters). As a result, most shooters with known information committed their crimes out of interpersonal, employment, governmental, academic, or financial, grievances. In contrast, very few committed a shooting for broader or global grievances such as generalized hatred or ideology. Finally, of those with known grievances, 44% experienced a triggering event related to the grievance before the shooting indicating a relationship between grievance and timing of the attack.

Similarly, Gill et al. (2017) find that mass shootings stemmed from varying grievances. Of 115 mass murderers between 1990 and 2014, 56% held a grievance against a particular person or entity. These varied widely and included employers, family members, government institutions, acquaintances, specific populations (e.g., women, minorities, gay communities), or vague entities like “rich snobs,” communists, or people in the “Rave” scene. Further, Gill et al. find that a portion of mass murderers experience a host of potentially triggering situations within two years of their crimes. These situations include being recently unemployed, feeling degraded, being a target of perceived prejudice, experiencing interpersonal or financial problems, and having elevated levels of stress. While the authors do not fully unpack the offenders’ reasons for their mass shootings, these findings highlight that motives of lone mass shooters tend to be more personally expressive than utilitarian or altruistic. This is perhaps the reason why 79% of Gill et al.’s sample attack in locations where they have personal histories.

Importantly, the reports I am discussing here look at shooter demographics and motives cross-sectionally. While this provides a good picture of perpetrators as a whole, it fails to examine if and how mass shooters have changed over time. Capellan and Gomez (2018) address this topic by comparing shooters from 2000-2015 to shooters from 1984-1999. The authors define mass shootings as events in which an offender kills or attempts to kill four or more victims in public in the absence of profit-driven criminal activity. Using this definition, the authors find that compared to earlier shooters, shooters between 2000 and 2015 are significantly older, more racially diverse, more likely to be single, and more likely to have a college education. In terms of motive, mass shooters in the 1980s and 1990s were predominately motivated by revenge against a particular individual (48.8%) or internal psychological processes (40.9%). By comparison, a significantly greater percentage of shooters between 2000 and 2015 were more motivated by revenge (56.1%) and ideology (13.6%) with a significant decline in internal or "autogenic" motivations (30.2%).

Assessing changes over time can also shed light on new driving factors of mass shootings. For instance, Silva and Greene-Colozzi (2019) study U.S. mass shootings between 1966 and 2018 and find that fame-seeking is an increasingly common motive for mass shooters. Here, the authors define mass shootings as gun violence incidents carried out by one or two perpetrators in public within 24 hours resulting in the death or injury of four victims. Further, the authors only include incidents in which at least one of the victims is chosen at random or for their symbolic value and the incidents must be unrelated to state-sponsored violence, profit-driven criminal activity, and familicide. In this sample, 45 shooters display a fame-seeking motive with 40% committing their crime in the first eight years of the 2010s alone. Focusing on high-fatality mass shootings (shootings with eight or more deaths), Lankford and Silver (2020) similarly find an increase in events motivated by fame in the past decade. This finding is alarming as those motivated to make headlines may be striving for higher death tolls – making future attackers potentially more competitive and more lethal (Lankford, 2016).

The overarching goal of this dissertation is to contribute to our understanding of mass shootings and their place in criminology. A vital part of this mission is to describe the offenders of these crimes and highlight their demographic and motivational heterogeneity. After all, detection, prevention, and intervention are rarely "one size fits all." More importantly, however, it is crucial to understand how these factors change over time. As time goes on, culture and technology change. These changes may play a role in motivating and mobilizing future mass shooters. Identifying how this has happened in the past can help guide future theory and policy responses. In this chapter, I describe the population of mass shooters used for the main analyses of this dissertation – focusing on key background characteristics, motives, and changes over time. While previous studies have explored mass shooter demographics, I expand on this work by also exploring relevant background characteristics commonly studied by criminologists.

Data Source

Throughout this dissertation, I employ the Violence Project's Mass Shooter Database. The Violence Project (VP) is a nonpartisan nonprofit that aims to reduce violence through empirical research. Initially funded by the National Institute of Justice, the mass shooter database is among the most comprehensive to date. This database spans over 55 years and includes extensive life history variables. VP collects data for each event by using 1) primary sources like manifestos, social media posts, or court transcripts and 2) publicly available secondary sources such as biographies, news reports, police reports, school records, medical records, or autopsy reports. Guided by a codebook based on existing literature, coders investigate each mass shooter twice and reconcile discrepancies with the principal investigators. VP regularly checks and updates the database.

VP's mass shooter database differs from more widely used databases like the Gun Violence Archive, Mother Jones, or Everytown in terms of depth and scope. While other sources track mass shootings at the event level and contain little information about the perpetrators and victims, VP's mass shooter database is primarily built to explore the life histories of mass shooters. This feature makes it the optimal choice for an in-depth individual-level analysis. While this database contains more details about mass shootings, it often contains fewer events than other sources due to its restrictive definition of mass shootings.

Mass Shooting Statistics

According to the VP database, between January 1966 and June 2023, there were 193 known mass shooters in the United States. Notably, this database represents an attempt to capture the population of mass shooters rather than a sample. That is, because events like these are highly publicized, it seems likely that all perpetrators of public mass shootings with at least four fatalities between 1966 and 2023 are captured in this database. Of all mass shooters, 185 (95.9%) committed their crimes alone while 8 (4.1%) had a partner. Collectively, these shooters were responsible for 189 shootings, the injury of 2,097 people, and the deaths of 1,359 people. The average age of victims killed were 39, with the youngest being one and the oldest being 98 years old. These victims had an average life expectancy of 72 years, resulting in each person losing an average of 33 years of their life. Figure 2.1 displays events and deaths over time.

Figure 2.1. VP's Annual mass shooting fatalities and counts, 1966-2023.

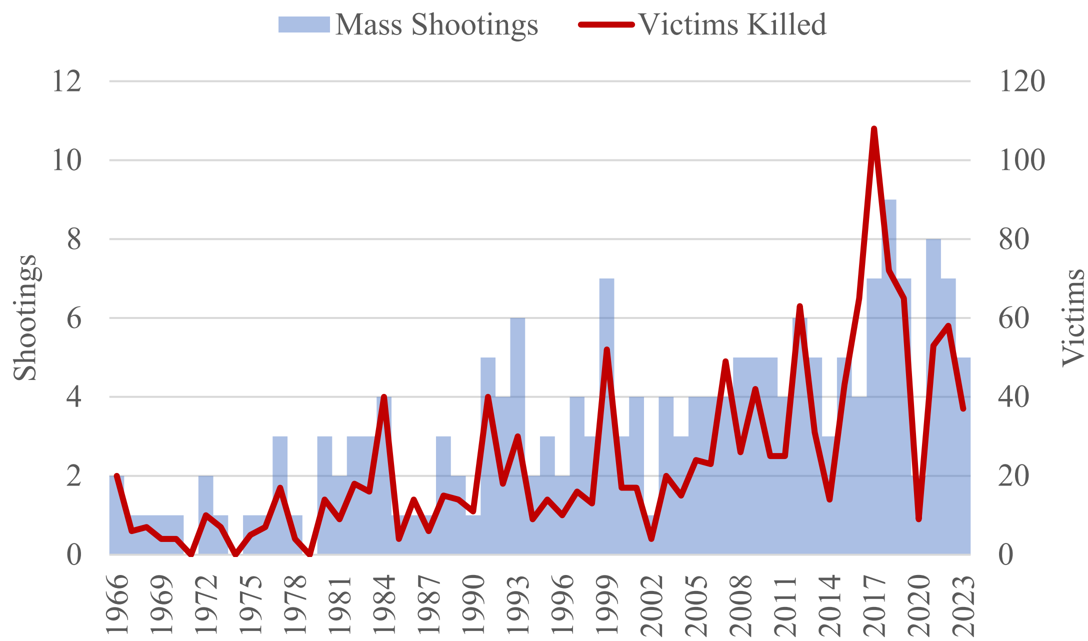
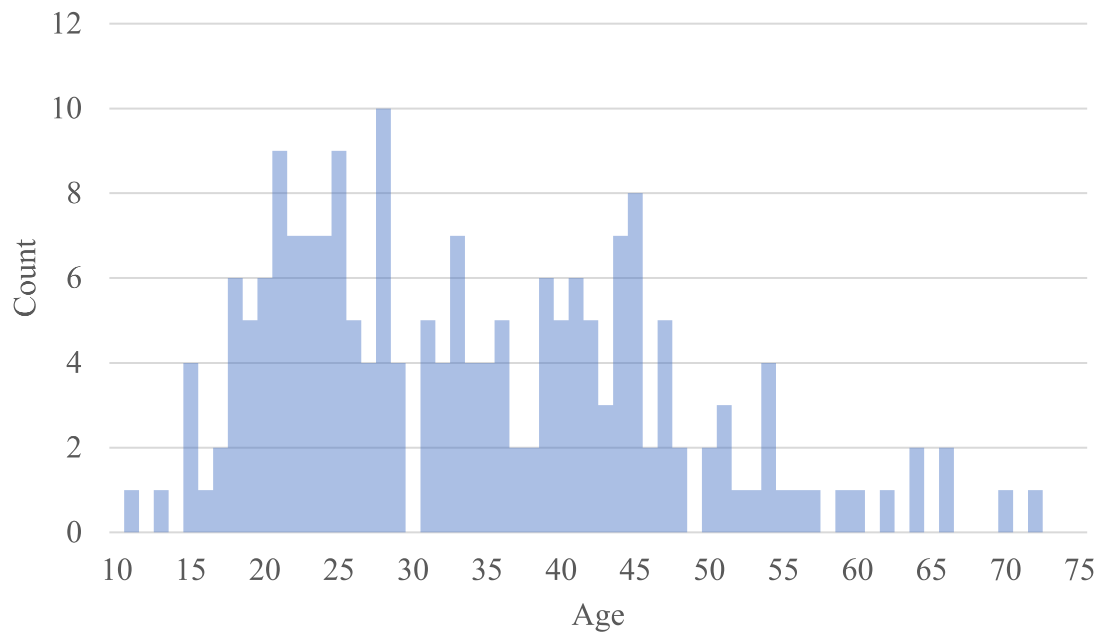


Figure 2.1 highlights that mass shootings are becoming more frequent with a steady increase over almost six decades. This finding is also supported by Berkowitz et al. (2019) and Lankford and Silver (2020). Strikingly, the last year with zero mass shootings was over four decades ago in 1978. Further, some of the highest annual fatality counts have been in more recent years. For instance, 2017 was the deadliest year for mass shootings, with this mainly driven by the Las Vegas shooting in which a man shot and killed 58 victims from a hotel suite.

Shooter Descriptive Statistics

As noted, previous works have identified demographic variability in mass shooting samples. I came to similar conclusions using VP's mass shooter database. In terms of demographics, the ages of the shooters ranged widely from 11 to 72 years old with an average of 33.9 (SD=12.8) and a mode of 28. Figure 2.2 depicts this distribution of ages while.

Figure 2.2. Distribution of mass shooter ages, 1966-2023.



Demographics

Table 2.1. Shooter demographics over the decades.

	All	60s	70s	80s	90s	00s	10s	20s
n	193	5	10	23	39	37	57	22
% Male	97	100	100	100	100	97	95	91
% White	55	80	60	81	56	47	47	55
% Black	22	20	30	10	31	21	21	18
% Hispanic	9	0	10	5	8	12	11	14
% Immigrant	16	0	10	4	15	16	21	19
% Married	16	60	22	23	10	19	13	10
% Heterosexual	97	100	100	96	97	97	96	100
Avg. Age	33.9	33.8	28.8	38	32.5	35	33.6	33.3

Table 2.1 displays other basic demographics of mass shooters over time. Of the 193 mass shooters in the VP database, nearly all (97%) were male at birth, four (2%) were female, and two (1%) were either transgender or non-binary. Of the four women shooters, two committed their crime with a male coconspirator. The majority (55%) of shooters with a known race were White and 22% were Black. Additionally, 16% of shooters were immigrants, 16% were married, and 97% were heterosexual.

Some shooter demographics have changed over seven decades. Notably, mass shootings prior to the 2000s were exclusively committed by men. Since the year 2006, women have increasingly participated in mass shootings -making up 9% of the offenders in the 2020s. The percentage of white offenders decreased from 80% in the 1960s to 55% in the last decade. Additionally, the percentage of immigrant offenders has increased - indicating an increase in racial heterogeneity among mass shooters. This increase in racial diversity is also found by Capellan and Gomez (2018) in their comparison of shooters over time. Capellan and Gomez argue that the increase in non-White offenders may be due to racial disparities in employment and income during the financial crises. That is, as economic strain increasingly and disproportionately impacted non-White individuals, diversity in mass shooters increased.

Key Background Characteristics

While basic demographics are important in illustrating a group of offenders, perhaps more important is describing their backgrounds. Because one of the objectives of this dissertation is to place mass shootings in the context of criminology, I focus exclusively on background traits identified by prominent criminological theories. Here, I explore the prevalence of these key criminological variables among mass shooters over time[1] (Table 2.2). I use these variables in the following chapters to compare mass shooters to homicide offenders and violent extremists.

Table 2.2. Prevalence of key variables among mass shooters over seven decades.

	All	60s	70s	80s	90s	00s	10s	20s
N	193	5	10	23	39	37	57	22
% Parent	29	40	11	43	28	33	28	19
% with a High School Degree	81	75	100	80	67	80	91	69
% Employed	42	40	70	38	42	39	34	59
% with Military Service	23	60	50	30	31	19	16	5
% with Low Childhood SES	41	0	29	65	43	29	40	47
% from Single-Parent Household	13	0	10	13	10	14	14	14
% with Parental Drug History	8	0	10	4	8	5	5	24
% with Parental Criminal History	10	0	0	9	8	11	12	14
% with Evidence of Abuse	13	20	0	9	21	19	12	5

As Table 2.2 displays, 29% of all offenders were parents, 81% had at least a high school degree, 42% were employed at the time of their crime, and 23% had some military experience – all measures of social bonds that theoretically tie individuals to prosocial society. Further, few mass shooters have experienced adverse life events known to push people into crime like coming from a low socioeconomic status (SES), being raised in a single-parent household, having a

[1] Observations were missing data for four key variables: Parenthood (n=186), Education (n=140), Employment (n=182), and Childhood SES (n=138). Statistics for these variables only consider known cases.

parent with a drug or criminal history, or being abused. Notably, military experience among mass shooters has decreased over time while low SES has increased. In addition to these key traits, I explore other important life history traits in Table 2.3.

Table 2.3. Prevalence of additional variables among mass shooters over seven decades.

	All	**60s**	**70s**	**80s**	**90s**	**00s**	**10s**	**20s**
N	193	5	10	23	39	37	57	22
% with Criminal Record	55	20	60	52	56	65	58	41
% with Prior Conviction	35	20	50	39	36	38	35	18
% with Known Mental Illness	45	60	30	43	51	62	40	23
% with Undiagnosed Psych. Disorder	24	20	30	17	21	16	23	50

As shown in Table 2.3, I found that roughly half of mass shooters had a known criminal record with 35% of all shooters being convicted of a crime. Shooters with a criminal history but no convictions were either suspected, arrested, or charged with a crime. Further, 45% had a known mental illness while another 24% showed indications of a psychiatric disorder with no diagnosis. These findings demonstrate that half of mass shooters had official criminal or psychiatric records. While this dissertation focuses on variables outlined in social control and strain theories, this finding highlights a critical area of investigation.

Motives

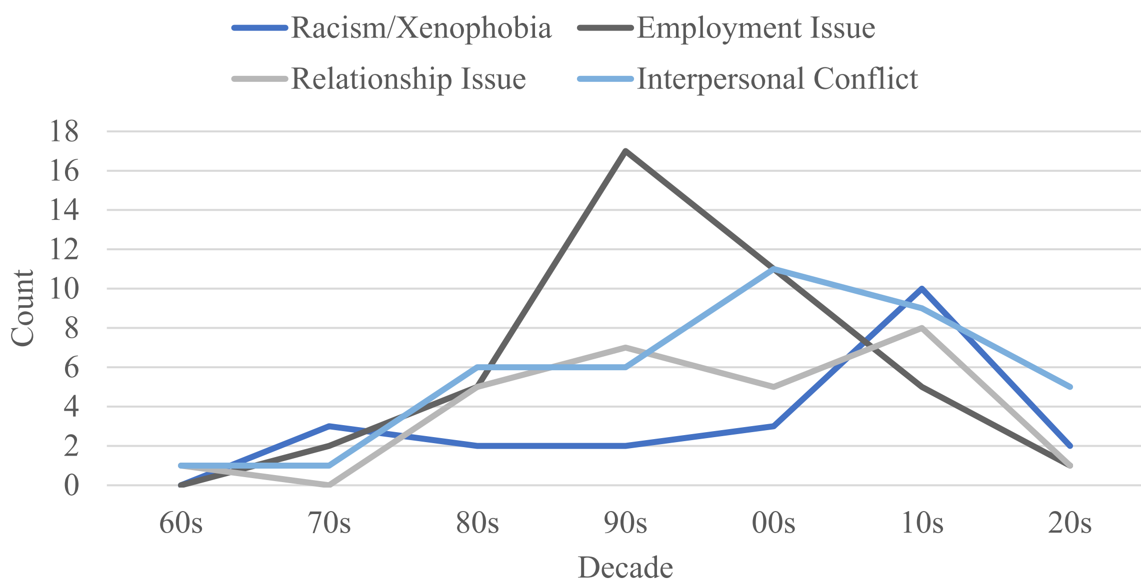
In addition to demographic and background information, VP offers information on the shooter's known motivation. This information is valuable to know as motivation or intent can play a key role in distinguishing mass shooters from other types of violent offenders. The mass shooter database highlights eleven motive categories: racism/xenophobia, religious hate, misogyny, homophobia, employment issues, economic issues, legal issues, relationship issues, interpersonal conflicts, fame-seeking, and “Other.” Importantly, these categories are not mutually exclusive as mass shooters can be motivated for multiple reasons. VP assigned only 88 (46%) mass shooters to a single motive. Further, 29 (15%) had an unknown motive. The remaining 76 (40%) shooters were connected to up to five motives for their crime. Table 2.4 describes the frequency of each motive over time.

Table 2.4. Mass shooting motivation frequency over seven decades.

	All	**60s**	**70s**	**80s**	**90s**	**00s**	**10s**	**20s**
Other	56	1	3	6	11	12	18	5
Employment Issue	41	0	2	5	17	11	5	1
Inter. Conflict	39	1	1	6	6	11	9	5
Relationship Issue	27	1	0	5	7	5	8	1
Legal Issue	22	0	1	2	8	4	7	0
Racism/Xenophobia	22	0	3	2	2	3	10	2
Economic Issue	21	0	1	3	7	4	6	0
Religious Hate	20	0	1	0	3	10	5	1
Fame-Seeking	13	1	0	1	3	1	5	2
Misogyny	8	1	1	2	1	0	2	1
Homophobia	3	0	1	0	1	0	1	0

Of all motives, “Other” and employment issues were the most commonly cited. This was followed by interpersonal conflict and relationship issues. The least common motives for all mass shootings were homophobia and misogyny. The prevalence of these motives varied widely throughout time with some topics being more common than others in certain eras. For instance, compared to the 1900s, religious hate and racism were more common after the year 2000. These trends can be seen more clearly in Figure 2.3, where I excluded the "Other" category and focused entirely on the top four motives of all time.

Figure 2.3. Top four mass shooting motives over seven decades.



Employment issues were the most common motivation of mass shootings in the 1990s with 17 (44%) of the 39 shootings in that decade being attributable to this motive. In the 2010s, motives shifted away from employment issues towards racism, interpersonal conflict, and relationship issues. In only two and half years into the 2020s, the nation has seen 22 mass shootings with 5 (23%) shootings being attributed to interpersonal conflict. This information can help identify trends in social issues that negatively impact or strain potential mass shooters. For instance, economic and labor market factors in the 1990s may have played a role in motivating mass shooters while interpersonal conflict and racism may be a greater issue in an increasingly polarized post-COVID America. Further, despite studies focusing on modern mass shooters (Lankford, 2016; Lankford & Silver, 2020; Silva & Greene-Colozzi, 2019), I only found a slight increase in fame-seeking motives.

Finally, in Figure 2.4, I show key variables for each mass shooter motive group. Each color represents that value's departure from the overall group average with the darker shades representing the greatest difference. Shooters who exhibited less common motives such as homophobia, religious hate, and misogyny had the most deviation from the overall group average. For instance, 100% of the shooters motivated by homophobia had a high school degree and were employed. They were also more likely than the average shooter to have a military background and less likely to come from a single-parent household. While offenders motivated by religious hate looked similar to the overall average in terms of these variables, they dramatically deviated from the norm in terms of parenthood, parental drug use, and history of abuse. Of those motivated by religious hate, 100% were parents, 0% had parents with a history of drug use, and 0% had evidence of abuse. Shooters who committed their crimes because of misogyny were much less likely than the average shooter to come from a single-parent household or have parents with a drug or criminal history.

Figure 2.4. Prevalence of key variables by mass shooting motive.

	All	Other	Emp. Issues	Inter. Conflict	Rel. Issues	Legal Issues	Econ. Issues	Racism	Fame-Seeking	Misogyny	Religious Hate	Homo-phobia
n	**193**	**44**	**41**	**39**	**27**	**22**	**21**	**14**	**13**	**8**	**6**	**3**
Parent	**71%**	77%	66%	57%	42%	55%	50%	86%	92%	88%	100%	67%
High School Degree	**81%**	86%	93%	85%	64%	83%	100%	90%	54%	67%	75%	100%
Employed	**42%**	41%	51%	47%	45%	41%	52%	29%	42%	25%	33%	100%
Military Service	**23%**	23%	32%	23%	11%	18%	24%	21%	8%	13%	33%	67%
Low SES	**41%**	25%	43%	55%	69%	33%	50%	36%	33%	29%	40%	67%
Single-Parent Household	**12%**	2%	15%	8%	11%	9%	19%	29%	46%	0%	33%	0%
Parental Drug History	**8%**	7%	2%	8%	7%	5%	0%	7%	15%	0%	0%	33%
Parental Criminal History	**10%**	9%	7%	8%	7%	0%	5%	21%	23%	0%	17%	33%
Evidence of Abuse	**13%**	16%	17%	5%	15%	5%	10%	7%	46%	25%	0%	33%

It is important to note that the small sample sizes of these groups may accentuate the drastic deviation from the norm. Logically, motive categories with more observations like employment issues, interpersonal conflict, and relationship issues, more closely resemble the group average. Nonetheless, there are a few notable deviations. For example, only 2% of shooters motivated by employment issues and 0% of shooters motivated by economic issues had parents with a drug use history. Comparatively, the population average for parental substance abuse is 8%. Interestingly, 100% of shooters motivated by economic issues and 54% of fame-seeking shooters had at least a high school degree. Fame-seeking shooters were also more likely to come from single-parent households and be parents than the average mass shooter. In all, this table shows that even mass shooters with the same motives come from a variety of backgrounds. This finding further suggests that there is no such thing as a single mass shooter profile.

In summary, the purpose of this chapter is to describe mass shooters, their motives, and how they have changed over time. Like others, I find that a single profile of a mass shooter is unattainable. In terms of offender demographics, I find tremendous heterogeneity. Aside from gender and sexual orientation, mass shooters tend to vary widely in terms of race, immigration status, marital status, and age. Further, I find that some characteristics fluctuate slightly between the decades with percent male, percent White, and percent married decreasing over time.

In terms of background characteristics, the majority of mass shooters are parents, have a high school degree, do not come from single-parent households, do not have parents with drug or criminal histories, and do not have evidence of abuse. Employment, military service, SES, criminal record, and mental illness, however, are relatively less common. Military experience and SES changed most over time with recent mass shooters displaying lower military history and lower childhood SES levels.

Finally, mass shooters vary widely in terms of motives. Aside from unspecified "other" motives, employment issues, interpersonal conflict, and relationship issues are the most cited reasons for mass shootings. Importantly, some motives are more prevalent than others over time with employment issues being common in the 1990s and racism and interpersonal conflict being more common in the 2010s and 2020s. Finally, I find that mass shooters who kill for different motives exhibit different background characteristics. Thus, while a single mass shooter profile may be unattainable, creating profiles based on motive may be a viable option. In all, these findings highlight the heterogeneity that exists within the mass shooting population and reveal that time may contribute to this diversity.

This chapter describes the perpetrators of mass shootings, the central focus of this dissertation. In the following chapters, I explore how this relatively new and horrific phenomenon compares to other violent crimes and what this implies for criminological theory.

Chapter 3: Placing Mass Shooters in Criminology

As mentioned, the goal of this dissertation is to contribute to our understanding of mass shootings and their place in criminology. To do this, I compare mass shooters to other violent offenders while incorporating contemporary criminological theory. While the root causes of mass shootings remain elusive, our current knowledge of similar crimes can help shed light on the phenomenon. Understanding where mass shootings fall in relation to single-victim homicides and violent extremism can inform us about the applicability of existing explanations and countermeasures.

In the previous chapter, I described what we currently know about mass shooters in the United States. In this chapter, I construct theoretical arguments for the relationship between mass shootings, general homicides, and violent extremism. Specifically, I argue that mass shootings are unlike common crime or homicide, and therefore, mass shooters may be different than typical criminals. I argue that perhaps mass shooters are closer in nature to violent extremists despite not being politically or ideologically motivated. To construct this argument, I discuss homicide and violent extremism, highlighting previous work that directly compares each offender group to mass shooters.

After establishing expectations for the relationship between mass shootings, homicides, and violent extremism, I discuss criminological theory. In particular, there are two theories often used to predict variation in homicide – social control and strain theories. For each theory, I discuss variables that criminologists commonly study and construct hypotheses that place mass shooters in relation to other criminals. By developing a comprehensive theoretical framework explaining how mass shooters differ from other violent offenders, I aim to establish a framework for subsequent analyses.

Comparing Mass Shooters to Perpetrators of Homicide and Violent Extremism

As discussed in Chapter 1, compared to mass shootings, traditional homicide is much more central to criminology research. Reflecting its prominence in the field, homicides have peer-reviewed journals and handbooks dedicated solely to their study. Further, criminologists have extensively studied and successfully used various existing criminological theories to explain homicide (e.g., Piquero et al., 2005; Pizarro et al., 2007; Pratt & Godsey, 2003; Rosenfeld et al., 2001). Understandably, the same cannot be said about mass shootings. Mass shootings are often seen as a relatively new and uniquely American issue. Thus, I assert that, compared to mass shootings, criminological theories are more targeted toward explaining traditional homicides, like single-victim murders.

Unlike homicide, violent extremism has only recently received more attention from criminologists. Perhaps accelerated by the 9/11 terrorist attacks, criminological research on violent extremism has experienced substantial growth in the past two decades (LaFree & Freilich, 2016a). Even so, scientists have found only moderate success when using criminological theory to explain violent extremism (Carlsson et al., 2020; Lafree et al., 2018; Pritchett & Moeller, 2022). I argue that, due to their similarities with violent extremism, mass shootings are similarly unique and may therefore exhibit weaker connections to major criminological theories.

The goal of this chapter is to theorize about mass shooting's position in criminology and specifically in relation to other forms of violence like homicide and violent extremism. In the following sections, I briefly discuss these two offender types and provide information on previous studies that compare each to mass shootings. After this, I discuss ways to classify violence and propose how the three forms of crime are related.

Single-Victim Homicide Offenders

A mass shooting is a form of homicide. According to the 2019 Uniform Crime Report, multiple victim killings committed by a single offender made up 6.9% of total homicides (Federal Bureau of Investigation, 2019). Despite being a form of homicide, mass shootings may be perceived differently than single-victim homicides by the public. As I explained in Chapter 1, empirically establishing the distinctions between the two crimes is vital as it informs potential crime control solutions. While it may be tempting to suggest that one theory can help explain all forms of homicides (i.e., mass shootings and single-victim homicides), tailored and efficient solutions may require a deeper understanding of the problem. I argue that if mass shootings and homicides significantly differ in terms of theoretically relevant offender characteristics, scholars should treat mass shootings as not simply a form of homicide but rather as a unique phenomenon that should be investigated and explained in new ways.

Previous Studies. Only a handful of studies have explored mass shootings and homicides through a comparative lens. One notable example is Lankford et al.'s (2021) epidemiological analysis of mass shooters, homicide offenders, and the general public. Like this dissertation, the authors use the Violence Project's database to gather information on known public mass shooters. To obtain data about the public, Lankford et al. use data from the U.S. Census. To obtain their sample of homicide offenders, however, they compile various sources and use statistics from the Bureau of Justice Statistics, the Federal Bureau of Investigation, and numerous previously published studies.

Compared to the average American, mass shooters in Lanford et al.'s sample are more often male, unmarried, and unemployed. Compared to homicide offenders, the authors find that mass shooters are significantly more likely to act alone, harm strangers, and exhibit suicidal ideation. Further, active shooters (shooters not found in the Violence Project database due to the fatality threshold) are more likely to plan their crimes than homicide offenders. While this study offers insight into the behavioral differences between mass shooters and homicide offenders, it does not explore personal background characteristics that can play a role in the differences between these two groups. More importantly, Lankford et al. note that a major limitation of their study is their data collection method. While "an ideal epidemiological approach would be for a single research team to study all groups using the same data collection methodologies over the same timeframe," Lankford et al. compile information on homicide offenders through various sources (Lankford et al., 2021, p. 137). To improve on this study, I explore a wider range of variables and use a single data source to create each group of offenders.

Fridel (2022) also explores the differences between mass shooters and homicide offenders. Pulling data from the National Violent Death Reporting System (NVDRS) and USA Today's mass murder database, Fridel compares incident, victim, and offender characteristics for mass murders and homicide offenders in the United States between 2003 and 2015. The author concludes that mass murder significantly differs from homicide in terms of several characteristics. Regarding offender characteristics, mass murderers are significantly more likely to be male and more likely to commit suicide afterward. Fridel finds no significant difference between the two types of offenders in terms of age or race. In addition to offender traits, Fridel finds significant differences when it comes to victim demographics, event location, weapon type, and role of intimate partner or drug/gang violence.

Like Lankford et al.'s (2021) study, Fridel's (2022) exploration faces a major limitation in terms of data. Fridel's use of NVDRS for homicide offenders is limited primarily to 17 states. More importantly, the authors are unable to control for various risk factors that have been identified in the literature, such as triggering events, childhood trauma, mental illness, or a history of substance use (Fridel, 2022, p. 142). With this dissertation, I aim to improve on the past literature by specifically focusing on these types of risk factors and incorporating databases that allow me to do so.

Violent Extremists

Like mass shootings, terrorist attacks or violent extremism have historically been understudied by criminologists. Over time, however, scholars have made substantial strides in integrating terrorism as a key topic in criminology with top-tier criminology journals publishing an increasing number of terrorism studies. Nonetheless, these studies commonly remain atheoretical (LaFree & Yanez, 2023). I argue that mass shootings and violent extremism share a similar space in criminology and thus explore how the offenders of each crime type differ. This comparison is important as it can inform the way we think about mass shootings and potential solutions. If the two have few differences, for instance, mass shooting policies may benefit from the existing counterterrorism literature. On the other hand, significant differences can further cement the uniqueness of mass shootings and reinforce the need for new research and specialized theories.

In terms of conceptualization, mass shootings and violent extremism overlap quite a bit. This is especially true when considering the varying definitions of terrorism. Like mass shootings, violent extremism can be defined in various ways (Stephens et al., 2021). Often used interchangeably with terrorism or radicalization, violent extremism generally refers to the use of violence to achieve ideological, religious, or political goals through fear and intimidation (Striegher, 2015). Considering this broad definition, it is easy to see how mass shootings can be classified as acts of violent extremism. For instance, scientists can classify an ideologically motivated individual who seeks to terrorize a community by killing four or more individuals in public with a firearm as both a mass shooter and a violent extremist.

These two classifications do not completely overlap, however. Most mass shooting estimates would exclude cases where radical extremists commit their crimes without a firearm or fail to kill four or more victims. Likewise, not all mass shooters are motivated by religious, political, or ideological motivations and would not be considered a violent extremist. Thus, while the two phenomena may share similarities, there is room to treat the two as separate crimes. Understanding the distinction between mass shootings and extremist acts is a critical first step to developing appropriate theoretical models for each and identifying ways in which mass shooting research can build on existing work on terrorism.

Previous Studies. Only a handful of studies have empirically compared mass shootings to acts of violent extremism or terrorism. To assess the definitional distinctions between the two types of crime, Hunter et al. (2021) identify four criteria commonly used to define terrorism: 1) political, religious, ideological, or social motivation; 2) intent to reach a larger audience; 3) a motivation that does not involve personal monetary gain; and 4) the manifestation of an 'enemy/other.' Using a sample of mass shooters as defined by the killing of three or more victims with a firearm for motives unrelated to conventional crimes or gang-related activities, the authors assess how many fulfill all four criteria of terrorism. Analyzing 105 mass shooting events between 1982 and 2018, Hunter et al. find that 39% of the incidents meet all four criteria with another 43% of incidents meeting at least three. This finding suggests that mass shootings and terrorist acts, by definition, show substantial similarities.

Further, Capellan (2015) compares ideological to non-ideological active shooters and finds that offenders share remarkably similar profiles. Specifically, both types of offenders are disproportionately white males in their 30s with approximately half suffering from some form of mental illness. Both types of offenders tend to be single or divorced, unemployed, and have similar levels of education. Despite similarities in demographic and background characteristics, the two types of mass shooters differ in terms of preparation for their attacks. Ideologically driven mass shooters are significantly more likely to have higher levels of planning than non-ideological shooters. Likewise, they are significantly more likely to research their target and train for the occasion.

Advancing this line of inquiry, Gill et al. (2021) compare lone actor terrorists to public mass murderers. Using a series of bivariate and multivariate statistical analyses, the authors find little distinction in demographic profiles. For instance, both types of offenders are predominantly single males in their mid-30s. However, Gill et al. notice that lone-actor terrorists are significantly more educated than mass shooters and significantly more likely to have military experience. Despite this, the authors find that the vast majority of variables available (+180 variables) show no significant difference between the groups. Although the two groups vary in terms of motivation, the authors conclude that "for the most part, they are similar people, with similar mobilization pathways, committing similar forms of violence with slightly dissimilar motivational structures" (Gill et al., 2021, p. 5).

Classifications of Violence

While I argue that mass shootings, single-victim homicides, and acts of violent extremism, are potentially distinct crimes, they are all nonetheless forms of violence. Scholars commonly classify violence using a continuum ranging from expressive to instrumental (Adjorlolo & Chan, 2017; L. Berkowitz, 1965; R. Block & Zimring, 1973; Miethe & Drass, 1999; Salfati & Park, 2007; Siegel, 1998). In expressive violence, the perpetrator's primary and immediate goal is violence itself. Perpetrators of expressive violence are emotionally invested in the violence and have desires to hurt their victims. By contrast, the perpetrators of instrumental violence are primarily motivated by other goals such as material gain or sexual gratification.

Violence can also fall into a design continuum spanning from planned to spontaneous indicating the level of premeditation of a crime (Block et al., 2000). Combined, these two continua produce four categories: planned instrumental, spontaneous instrumental, planned expressive, and spontaneous expressive. Typical homicides can fall anywhere along these continua and can thus be placed under each category. For instance, a robbery gone wrong that results in the death of a victim can be categorized as a spontaneous and instrumental act of violence. Killing a partner after discovering an affair can be considered spontaneous expressive violence. Stalking and killing a person of interest would be planned expressive violence while premeditatively killing a homeowner to gain access to their safe is planned instrumental violence. Despite having examples for each, Block et al. (2000) argue that most instrumental violence is planned while most expressive violence is spontaneous. Mass shootings present an interesting deviation from these patterns.

By definition, mass shootings in this dissertation are exclusively expressive because they cannot be "attributable to any other underlying criminal activity or commonplace circumstance" (Krouse & Richardson, 2015, p. 10). Mass shooters commit their violence with the immediate intent to kill and injure. Hence, mass shootings are confined to the expressive half of the motivation continuum. Further, evidence suggests that the majority of successful mass shootings are premeditated and extensively planned (Lankford & Silver, 2020; Silver et al., 2018; Smart & Schell, 2021). Therefore, unlike most expressive crimes, mass shootings fall into the planned expressive violence category. Because mass shootings hold a unique space in the classification of violence, I expect mass shooters to be significantly different from traditional homicide offenders. In particular, I expect the two groups to differ in terms of commonly explored correlates of crime as proposed by social control and strain theories.

On the other hand, I expect more similarities between mass shooters and violent extremists. As Hunter et al. (2021) show, mass shooters and violent extremists substantially overlap because of similarities in definitions. For instance, the two groups are commonly motivated by violence itself - making both an expressive crime. Nonetheless, there are small distinctions between the two. A defining trait of violent extremists is the desire to send a message through violence. While some mass shooters may share this desire, this is by no means a definitional criterion. Indeed, both groups commit their crimes with the goal of committing violence, but violent extremists are more often using this crime to express a broader message. I thus place violent extremists slightly closer to the expressive pole of the continua. Further, Capellan (2015) finds that ideologically driven shooters are significantly more likely to have higher levels of planning than non-ideological shooters. This finding suggests that, compared to nonideological mass shooters, violent extremists, or ideologically driven offenders, fall closer to the planned pole. Despite these differences, I argue that mass shooters and violent extremists share much in common because they both commit planned and expressive forms of violence.

The classification of mass shootings is important to note because various studies have found that situational and individual-level characteristics vary significantly among categories (for review, see Adjorlolo & Chan, 2017). For instance, Salfati and Park (2007) find that among Korean homicides, spontaneous instrumental perpetrators target females more frequently and are more likely to have previous convictions for sexual offenses than planned instrumental perpetrators. Likewise, Fox and Allen (2014) find that instrumental-offensive homicides are more likely to be committed by males targeting strangers or acquaintances with firearms. Expressive-offensive homicides, on the other hand, are more likely to be committed by males targeting family members without firearms. Identifying distinct profiles within violent offenders is critical to preventing future crimes as one strategy may be more effective for one type of offender than another.

Considering that offender profiles of each motive/method category vary significantly, I argue that mass shooters, who predominately commit planned-expressive violence, significantly differ in terms of offender characteristics from typical homicide offenders who tend to embody spontaneous expressive or planned instrumental violence. Likewise, I argue that because violent extremists and mass shooters both perpetrate expressive-planned violence, there will be no significant differences between the two offender types in terms of commonly explored background characteristics.

As mentioned, a few studies have previously compared mass shooters to homicide offenders and violent extremists. None, however, have integrated criminological theory or explored traits that are commonly studied in relation to offending. In this dissertation, I go beyond surface-level demographic comparisons and dive into background characteristics that influence criminal behavior. By incorporating existing theories, I aim to provide a more nuanced understanding of mass shooters while contributing to the development of evidence-based policies.

In the following section, I discuss two contemporary criminological theories: social control and strain. After explaining each theory, I outline the hypotheses to be evaluated in Chapter 4 and Chapter 5.

Integrating Criminological Theory

Can common explanations of crime also explain mass shootings? To answer this question, I begin by discussing the philosophical roots of two influential etiological theories. Attempts to explain criminal offending may require an answer to the question: Are people inherently good or bad? Philosophers have debated this question for centuries, but perhaps the most notable contributors have been Thomas Hobbes and Jean-Jacques Rousseau. Thomas Hobbes was a philosopher and political theorist best known for his book *Leviathan* (1651). Inspired by the physical revolutionary discoveries of his time, Hobbes sought to explain human behavior in mechanical terms. He describes humans as representing “objects” or bodies with several working senses (i.e., sight, smell, sound, taste, feeling). Events or stimuli, real or imagined, play on these senses, making them favorable or unfavorable to humans. This leads to desire or aversion -what Hobbes calls the “interior beginnings of voluntary motions” (p.28). While some appetites and aversions are learned through experience, humans are born with certain drives, such as an appetite for food or an aversion to pain. Hobbes claims that while desires vary among individuals, all humans are inclined to pursue power and things that please them (p.63).

Regarding the fundamental question, Hobbes would argue that humans are not inherently good but rather inherently self-interested and primarily motivated to fulfill their desires. Using this perspective, one can contend that mass shooters and homicide offenders are, like everyone else, simply acting on their unique desires, whether they stem from rage, jealousy, revenge, pleasure, or a need for power. Not everyone resorts to murder, though, and even fewer escalate their violence to mass casualty events. Why, then, do a small group of individuals ultimately execute such violence? Once again, Hobbes’ philosophy can shed light on this question.

Hobbes notes that the desires of one individual may often conflict with another's or may impose harm -creating a state of perpetual conflict or war. To remedy such a violent existence, Hobbes claims that individuals enter into a social contract in which they relinquish some rights to secure their safety. A society imposes a fear of punishment or death to ensure that a person abides by this social contract. In other words, to live in a civil society, people must relinquish some rights, abide by laws, or otherwise face punishment. Scholars can thus argue that while a small number of people may have desires to commit murder or a mass shooting, the majority refrain from pursuing these desires and abide by their social contract to avoid punishment or other negative consequences. Those who act to fulfill these desires are unaware or unconcerned by the sanctions in place.

Over 100 years after *Leviathan*, philosopher Jean-Jacques Rousseau published *The Social Contract* (1762). In contrast to Hobbesian philosophy, Rousseau (1762) argues that social contracts are not made out of a need for protection from others. Instead, social contracts result from humans' growing dependence on each other to fulfill basic needs by trading various goods and services. Rousseau argues that, due to limited resources and dependence on others, societies become class states with unequal and exploitive social relations between individuals. Thus, in Rousseau's philosophy, a social contract is not the solution to a chaotic and violent world but rather the catalyst to one. This difference leads to significant changes in the assumptions about human behavior.

Like philosophers before him, Rousseau contends that all humans are driven by basic biological needs such as food and shelter. He argues, though, that humans are also driven by compassion or *pitie*. Rousseau (1775) theorizes that second to self-preservation, people inherently feel pity for others and naturally do not want others to suffer. Thus, while Hobbes views humans as inherently self-interested, Rousseau depicts humans as good and naturally empathetic creatures. This characterization of human nature, however, is merely hypothetical. Rousseau (1762a) claims that, in reality, as settlements or societies emerge, and competition for resources grows, humans, as social beings, become concerned with comparative success. He calls this need to be recognized by others "*amour propre,*" which translates to a love of self, pride, or vanity (Bertram, 2023). Not being recognized as socially successful may lead individuals to react with anger or resentment. Thus, a modern society that experiences more material interdependence and unequal distribution of material goods may experience more instances of people lashing out in frustration, which can take the form of murders or mass shootings.

In summary, a review of 17th- and 18th-century Western philosophy reveals two schools of thought that can explain crime and potentially mass shootings. Hobbesian philosophers would argue that people commit violent acts when they are not adequately restrained from various personal motives such as anger, jealousy, need for power, or pleasure. On the other hand, Rousseau supporters would argue that competition and the need for recognition brought on by an unequal society based on interdependence leads a person to commit criminal acts out of anger or frustration. These two arguments can be seen in two contemporary criminological theories: social control and strain.

It is important to note, however, that while these contemporary theories stem from opposing assumptions about human behavior and the formation of societies, they do not always conflict with each other. The two theories often overlap in the form of common key predictors of crime. For instance, both social control and strain perspectives assume that employment, family structure, military experience, and education have an impact on violent offending. Instead of pitting these theories against each other, I use them to identify and organize essential variables that are hypothesized to be related to crime. I then use these variables to understand the etiological differences between mass shooters and a sample of homicide offenders and violent extremists.

Social Control

Hobbes' philosophy on social contracts contains two underlying assumptions about human behavior at the individual level: 1) People are rational beings who seek pleasure and avoid pain, and 2) People are selfish and need to be held back from obtaining desires that impose pain on someone else. While some of the earliest works in criminology (i.e., Beccaria, 1866; Bentham, 1789) incorporated these, they fell out of favor for many years before resurging in the twentieth century during a period of American conservatism (Valasik, 2013). After Hobbes, economics scholars used the concept of deterrence in their own theories. Specifically, the Expected Utility Theory (von Neumann & Morgenstern, 1947) states that individuals will make choices to maximize anticipated profits and minimize costs or losses while also considering risks and outcome probabilities. Perhaps the most relevant theory to stem from this notion is Hirschi's Social Control theory.

Hirschi's (1969) social control theory, sometimes called the social bonds theory, begins with the premise that humans seek gratification, but, at times, the most accessible means of obtaining gratification is crime. Most people are held back from committing crimes because they are bonded to conventional society or are under society's control. Accordingly, individuals who commit crimes like murders and mass shootings have weakened or non-existent ties to social institutions. To best illustrate this logic, Hirschi (1969, p. 16) begins the proposition of his theory by quoting Durkheim's influential book *Suicide*:

> “The more weakened the groups to which [the individual] belongs, the less he depends on them, the more he consequently depends only on himself and recognizes no other rules of conduct than what are founded on his private interests.” (Durkheim, 1897, p. 209)

With this, Hirschi maintains that conformity to the law stems from the bonds between individuals and society. These bonds give individuals something to lose if they are caught offending. If these bonds are broken or weak, individuals will act in their own interest despite those actions being against the law. By this logic, people who commit mass shootings and homicides may lack strong attachments, commitment, involvement, and beliefs in conventional society.

Later work by Sampson and Laub (1993) expands on this theory to encompass adult offending and desisting. Like Hirschi’s social control theory, Sampson and Laub’s age-graded theory of social control begins with the premise that crime occurs when an individual’s bonds to society are weakened. While Hirschi emphasizes the importance of parental bonds, Sampson and Laub illustrate that the sources of social control vary over a person’s lifetime. In a person’s early years, psychological and structural conditions like a child’s temperament or family’s poverty status affect parental bonds. These bonds can affect an individual’s later attachments to school and friends. Over time, an individual can collect social capital in adulthood through attachments to employment, parenthood, or marriage. Acquisitions of these bonds in later life can serve as turning points that have the power to lead a delinquent person away from a life of crime.

Sampson and Laub's (2003) seminal work builds on longitudinal data collected by Sheldon and Eleanor Glueck. Between 1949 and 1963, the Gluecks conducted a longitudinal study of 500 delinquent boys matched with a sample of 500 nondelinquent boys. Decades later, Sampson & Laub (2003) found and interviewed the delinquent boys. The authors highlight several mechanisms, like marriage, employment, and military service, which led delinquent boys away from a life of crime.

In this dissertation, I focus on the presence of adult bonds like these among mass shooters, homicide offenders, and violent extremists. However, it is important to note that tests of this theory require not only observable variables like employment status or enrollment in extracurricular activities but also require measurements of an individual's perceptions. In other words, a study that sets out to test all components of a social bond will need to capture information about an individual's relationships, the importance they place on these relationships and conventional goals, the time and energy spent on these relationships or related activities, and the individual's perception of the law. Consequently, earlier tests of social control theory often rely on some form of self-report data (e.g., Krohn & Massey, 1980; Rankin & Kern, 1994; Wiatrowski et al., 1981). Studies of violent crime, however, often lack this type of data. Despite this limitation, a handful of studies have managed to explore social control theory in the context of adult-perpetuated crime.

As discussed, I argue that homicide offenders and mass shooters will display significantly different levels of social bonds as mass shootings represent a unique deviation from traditional classifications of violence. Additionally, I argue that because violent extremists and mass shooters perpetrate similar violence, they will exhibit similarities in terms of key background characteristics.

Importantly, I formulate two-tailed hypotheses to account for the possibility that mass shooters and violent extremists can either be more or less likely to have social bonds. On one hand, these offenders could be considered outliers in the spectrum of violence. In this case, theories used to explain common violence may not be applicable to mass shooters and violent extremists. These offenders could exhibit backgrounds that are counterintuitive to theory (i.e. stronger attachment to society when compared to homicide offenders). On the other hand, violent extremists and mass shooters could be considered more extreme or radical versions of traditional homicide offenders. In this case, criminogenic traits may be heightened in these offenders (i.e., even weaker attachment to conventional society when compared to homicide offenders). By adopting two-tailed hypotheses, I allow for the possibility that either one or both explanations are true.

Parenthood. Becoming a parent can be a pivotal moment for many people. Having children can bring on additional responsibilities, a shift in priorities, and an overall lifestyle change. In theory, these changes can lead to desistence from crime by strengthening social bonds. However, the relationship between parenthood and offending is a complicated one. Parenthood, like many other life events, can affect individuals differently, especially when considering how parenthood differs for men and women. Consequently, studies in this area find that parenthood may only impact a woman's offending – not a man's (Giordano et al., 2011; Kreager et al., 2010; Pyrooz et al., 2017; Schinkel, 2019; Zoutewelle-Terovan et al., 2014). This finding is especially true for men living away from their children (Landers et al., 2015). These findings are further supported when considering how parenthood culturally varies between races and countries as some groups may experience higher levels of cohabitation or social support than others (Craig, 2015; Savolainen, 2009; Zoutewelle-Terovan et al., 2014).

In the next chapter (Chapter 4), I compare the prevalence of key life history characteristics among mass shooters and homicide offenders to better understand if the paths to each crime differ. While there is little empirical literature suggesting that mass shooters are more or less likely to be parents than homicide offenders, I argue that because mass shootings and single-victim murders can be classified as different forms of violence, the two offenders may then differ in terms of this social bond:

H1a: The percentage of mass shooters who are parents will significantly differ from the percentage of homicide offenders who are parents.

In Chapter 5, I compare the prevalence of key life history characteristics among mass shooters and violent extremists. Considering their similarities in terms of intent and planning, I argue that mass shooters and violent extremists will not be significantly different in terms of this social bond:

H1b: The percentage of mass shooters who are parents will not significantly differ from the percentage of violent extremists who are parents.

Education. In social control theory, education can deter a person from crime by promoting involvement and commitment to conventional societal goals. For instance, individuals may perceive education as social capital that increases the likelihood of obtaining legitimate income which may further strengthen bonds to conventional society. Criminal offending or engaging in delinquent acts may result in capital loss and a decline in potential future earnings (Beaton, 1975; Phelan & Phelan, 1983). Thus, the risk of losing the potential return of investment from education may deter an individual faced with the opportunity of crime. Additionally, involvement in education can ensure that individuals have limited time or opportunity to commit crimes (Hirschi, 1969).

Prior research supports the negative relationship between educational attainment and criminal offending. For example, Hirschi's (1969) test of the theory revealed that boys with higher educational attachment and commitment were less likely to participate in delinquency. Likewise, several studies find a significant negative relationship between schooling and future incarceration (Dennison, 2019; Groot & Van Den Brink, 2010; Hjalmarsson et al., 2015; Lochner & Moretti, 2004; Machin et al., 2011; Sabates, 2008).

Considering the prominent role that education plays in criminal offending and desisting, I investigate how educational attainment differs between mass shooters and homicide offenders. As noted, I argue that the two offenders will be significantly different in terms of key criminological variables, including education. This argument is supported by Capellan and Gomez (2018) who find that 40.4% of mass shooters between 2000 and 2015 have at least some college education – a substantial difference from the 13.9% reported among federal prisoners in 2016 (Bureau of Justice Statistics, 2019) :

H2a: The percentage of mass shooters with at least a high school degree will significantly differ from the percentage of homicide offenders with at least a high school degree.

A similar pattern can also be seen for violent extremists. In his comparison of violent and nonviolent extremists, Becker (2021) refers to education as "a salient representation of social investment in one's future" (p.14). He finds that student status marginally decreases the likelihood of violent offending among extremists. Further, in their comparison of extremists and gang members, Pyrooz et al. (2018) reveal that 85.8% of non-gang extremists have a high school degree compared to 50% of adult gang members. Compared to mass shooters, however, I expect little to no significant difference:

H2b: The percentage of mass shooters with at least a high school degree will not significantly differ from the percentage of violent extremists with at least a high school degree.

It is important to note, however, that Gill et al.'s (2021) comparison of terrorists to mass murderers reveals that terrorists are significantly more educated than mass murderers. Specifically, 33% of terrorists compared to 24% of mass murders took part in some form of university education. Considering that the current study uses a different operationalization of education than the one in Gill et al.'s paper, I maintain that the two groups of offenders will display no significant difference.

Employment. Hirschi (1969) and Sampson and Laub (2003) argue that stable employment is a social bond that reduces the likelihood of adult offending. Theoretically, a job can offer individuals attachments to coworkers, commitment to a successful career, involvement in prosocial activities that may take away time from criminal activities, and a belief that adhering to the law is vital to maintaining employment. Additionally, well-paid jobs can lead an individual to see the potential benefit of crime as too low for its potential costs.

Although there is mixed support for the argument that higher wages reduce the likelihood of crime (Apel & Horney, 2017; Grogger, 1998; Wadsworth, 2006), there are nonetheless several studies that support the negative relationship between employment and offending (Crutchfield & Pitchford, 1997; Thornberry & Christenson, 1984). However, some evidence indicates that employment has the opposite effect on younger offenders (Uggen, 2000, 2001). It is also important to note that the positive effects of employment may be limited to property crime as opposed to violent crime (Aaltonen et al., 2013; Raphael & Winter-Ebmer, 2001).

Notably, Apel and Horney (2017) set out to shed light on the complex relationship between employment and crime by identifying mediating mechanisms. In a sample of incarcerated adult males, the authors examine the impact of hours worked weekly, annual income, and self-reported commitment to a job on self-reported crime. The authors find that job commitment alone is a significant determinant of short-term crime reductions, indicating that social control theory can be used to explain the relationship.

Given the considerable influence that employment has on criminal activity, I explore potential variations in employment among mass shooters and homicide offenders. Continuing with the assumption that homicide offenders and mass shooters are significantly different in all aspects that contribute to crime, I argue that the groups will be significantly different in terms of employment:

H3a: The percentage of mass shooters who are employed will significantly differ from the percentage of homicide offenders who are employed.

Although Capellan (2015) finds that ideologically driven shooters have slightly higher rates of unemployment compared to non-ideologically driven ones, this finding was not significant. Thus, I argue that there is no significant difference in employment, between mass shooters and violent extremists:

H3b: The percentage of mass shooters who are employed will not significantly differ from the percentage of violent extremists who are employed.

Military. Sampson and Laub (2003) argue that military experience can deter people from crime in many ways. First, individuals can be separated from their disadvantaged community and delinquent peers. Additionally, the military can provide direct paths out of poverty through job training and paid education. The military also temporarily relieves poverty by providing necessities like housing, food, and clothing. On an individual level, the military can teach recruits healthy routines, discipline, structure, identity, and a sense of community. Combined, military benefits can deter individuals from offending by encouraging attachment to others in the military community, enforcing rules with punishment or loss of social capital, reducing unstructured time, and instilling prosocial beliefs. In other words, enrolling in the military can provide an individual with the opportunity to increase attachment, commitment, involvement, and belief in prosocial institutions.

Several studies have tested the relationship between military experience and criminal offending, but this is perhaps the least supported turning point in Sampson and Laub's theory. A study of cohorts from the 1940s reveals that military service reduces overall adult offending (Bouffard, 2003). This study, however, does not find a significant impact of military service on later *violent* behavior. A more recent study also finds that military service is related to lower self-reported crime (Gloyd & Leal, 2019). However, this study also finds that military experience increases the likelihood of engaging in drug crimes. More importantly, a systemic review of the literature reveals that most studies (68.25%) that focus on the relationship between military status and criminal behavior find no significant relationship (Baktir et al., 2020). While some studies in this literature review find that the military lowered the risk of committing or being arrested/convicted for a nonviolent crime, others find that military members are more likely to commit violent crimes.

Contradictory findings in the literature highlight the potential costs of joining the military. While social control theory may posit that military life creates prosocial bonds that deter people from nonviolent crime, military life can also produce harmful environments that lead individuals into violent crime. The military often relocates or deploys members for several months at a time. This isolation can lead to the weakening of bonds with family members or a community. Further, military personnel who experience traumatic events at war may find it hard to relate to civilian loved ones upon returning home (Morin, 2011). Compounding the issue, masculinity is known to be a central theme in the military subculture (Braswell & Kushner, 2012; Herbert, 1998). Such masculinity can influence individuals to act out in violence or refuse help for any mental health issues (Carlsson, 2013; Hoge et al., 2014). Thus, the military can leave individuals feeling isolated, traumatized, and desensitized to violence or aggression. This can be a source of grievance for potential shooters. Further, various studies suggest interest in weapons and the military is common among mass shooters (Clemmow et al., 2022; Gill et al., 2021)

Despite mixed support and the complex relationship between military experience and violent crime, I argue that mass shooters will have significantly different military experiences than homicide offenders:

H4a: The percentage of mass shooters with military experience will significantly differ from the percentage of homicide offenders with military experience.

Assuming mass shooters and violent extremists hold a similar place on the spectrum of violence leads me to expect that they will have similar connections to military experience. Pyrooz et al. (2018) found that nearly 20% of domestic extremists have military experience compared to 5% of adult gang members. Importantly, while I argue that the two may have similar backgrounds, Gill et al. (2021) find that, compared to mass murderers, lone-actor terrorists are significantly more likely to have served in the military and have combat experience. Given that our studies have different sampling methods, however, I maintain that the two are not significantly different in terms of this social bond:

H4b: The percentage of mass shooters with military experience will not significantly differ from the percentage of violent extremists with military experience.

Strain

While Hobbesian philosophy inspired social control theories, strain theories more closely align with Rousseau's ideas of civilization and human nature. Rousseau (1775) argues that the formation of societies and social structures has resulted in competition, unequal distribution of resources, and moral degradation. Such conditions place stress on individuals as humans need to be perceived as socially successful. Strain theories make this same argument.

Merton (1938) is recognized as the first to present a modern version of strain theory (McLaughlin & Newburn, 2010). Merton's theory focuses on social structures in the United States and claims that Americans strongly emphasize monetary success, or "the American Dream," yet do not stress legitimate means of accomplishing this success. According to the theory, this disjunction can lead frustrated individuals to adapt in one of five ways: conform (i.e., accept cultural goals and the institutionalized means of achieving the goals), innovate (i.e., accept the goals but create new means of obtaining them), ritualize (i.e., reject the goals but continue through social norms), retreat (i.e., reject both the goals and means), or rebel (i.e., reject both goals and means but actively work to replace them with new social norms). Of all the modes of adaptation in Merton's theory, innovation, retreatism, and rebellion have the most potential to involve crime.

In his classic strain theory, Merton argues that crime occurs in societies with high social expectations yet limited legitimate paths to success. Because this argument focuses on social structures more than social processes, Merton's theory is a macro-level theory. Agnew (1992) takes this concept and applies it to the micro-level with his general strain theory.

Like previous strain theorists, Agnew (1992) argues that failure to achieve goals is a major source of frustration or anger that can push individuals toward crime. However, Agnew reasons that strain can also stem from other sources. A strain can refer to losing something of positive value, experiencing something negative, or failing to achieve a goal. The theory further claims that strains can be objective or subjective. While people generally perceive events like assault or the loss of a loved one as unfavorable, differences may exist in how they perceive other events, such as divorce or failing grades. Agnew also elaborates on types of strain by arguing that vicarious or anticipated strains can also impact an individual's behavior (Agnew, 2002).

Like Merton, Agnew acknowledges that not all strains result in criminal behavior. Agnew stresses that individual and strain characteristics can impact the likelihood of crime. Specifically, strain-inducing situations can increase the likelihood of crime if they are (1) perceived as high in magnitude or severity, (2) perceived as unjust or in violation of the norm, (3) associated with low social control, or (4) quickly resolved through criminal means (Agnew, 2001). In terms of individuals, Agnew (2014) argues that some people resort to crime while others do not because (1) they lack the ability to adjust to the strain in a legal way, (2) they perceive the costs of crime to be low, or (3) they are predisposed to crime.

In all, Agnew's general strain theory reasons that some adverse life experiences may lead to negative emotions, which in turn pressure some individuals to commit crimes. While strains are common in life, certain strains are more likely to result in crime. Likewise, while everyone may experience strain, certain individuals may be more likely to resort to crime. By this logic, people who commit crime are more likely to be individuals who experience subjectively severe or unjust strains but cannot adequately cope, are more disposed to violence, and perceive violence as a viable option.

Overall, research has supported the basic premises of Agnew's general strain theory relatively well (See Brezina, 2017 for review). Namely, studies have found that, even after controlling for several competing theoretical explanations, strain is positively related to negative emotions and criminal offending (Agnew & White, 1992; Baron, 2004; Hoffmann & Su, 1997; Mazerolle & Piquero, 1997; Ostrowsky & Messner, 2005; Paternoster & Mazerolle, 1994). This relationship can even be seen among mass shooters, with many of them associated with anger stemming from abandonment, rejection, insults, or assault (Fernandez et al., 2020). However, tests of general strain theory are more complex than finding a positive relationship between stressful life events, negative emotions, and crime. According to the theory, individual and event characteristics affect whether a strain pressures an individual into delinquency. The inclusion of negative emotions as mediators complicates this further.

Broidy (2001) exemplifies this complexity by studying college students' reported emotional responses and coping measures when faced with Agnew's three types of stains (i.e., failure to achieve goals, removal of positive stimuli, and exposure to negative stimuli). Broidy's study reveals that while strains are associated with negative emotions, results vary by type of strain and type of emotion. Failure to achieve a goal is negatively related to anger, whereas the other two forms of strain are positively related to anger and other negative emotions. Despite the varying relationships between strain and emotions, Broidy confirms that anger, a key component of general strain theory, is positively related to criminal coping methods. Several studies have examined and supported the connection between anger and crime (Aseltine et al., 2000; Capowich et al., 2001; Ganem, 2010; Mazerolle et al., 2003; Sigfusdottir et al., 2004).

Operationalization and measurement of strain can lead to inconsistent findings. Agnew (1992) argues that there are three types of strain: 1) the inability to achieve goals, 2) the presentation of negative stimuli, and 3) the loss of positive stimuli. These strains are more likely to result in crime if they are perceived as severe, unjust, resolvable through crime, or if they impact social bonds. Thus, like the study of social control, valid tests of general strain theory should measure an individual's perception. While some scholars capture subjective strain by ensuring that surveys ask individuals about their perceived experiences (Agnew et al., 1996; Agnew & White, 1992), most limit their studies to measuring objective strains in the form of adverse life events (Broidy, 2001; De Coster & Cornell Zito, 2010; Hoffmann & Su, 1997; Kaufman, 2009; Mazerolle et al., 2003; Sigfusdottir et al., 2004). In this dissertation, I focus on five adverse situations that can be considered objective strains: low childhood SES, single-parent family structure, parental drug use, parental criminal history, and physical/sexual abuse. Limiting the analysis to an objective measure of strain assumes that certain situations are unfavorable for everyone.

Unlike social control theories, strain theories suggest that individuals are not naturally pulled towards crime but are rather pushed towards it. While the philosophical foundation of social control emphasizes the need for social contracts to regulate criminal behavior, early strain theorists argue that society itself contributes to the commission of crime. Namely, the pressures, perceived injustices, and competition within modern societies spark strain and other negative emotions (Agnew, 2015; Agnew & White, 1992; Merton, 1938). This strain leads people to offend either as a way of expressing these emotions or as an instrumental means of achieving socially ascribed goals.

Agnew (2010) advocates for the use of strain theory in explaining terrorism. Like with other crimes, he argues that terrorism is more likely to occur when people experience "collective strains" that are: "(a) high in magnitude, with civilians affected; (b) unjust; and (c) inflicted by significantly more powerful others, including ‘complicit’ civilians, with whom members of the strained collectivity have weak ties” (Agnew, 2010, p. 132). In studies of extremism, scientists commonly use strain theories as a structural or social explanation. Namely, scholars use strain theory to explain differences in terrorism rates between counties, states, or countries. In these contexts, strain is often measured by poverty or relative and collective deprivation (for review, see Agnew, 2010). However, it does not appear that strain and extremism have as strong of a relationship as strain theories would suggest (Agnew, 2010; Atran, 2003; Krueger & Malečková, 2003; Piazza, 2006).

Notably, Agnew (2010) addresses the weak support for his theory in terrorist studies by highlighting three major problems in the literature. First, Agnew argues that existing strain-based explanations of terrorism fail to describe key characteristics of strains most likely to result in terrorism. That is, not all strains lead to terrorism and thus require more elaborate investigations of the type of strain theorized to lead to violent extremism. Second, strain-based explanations do not elaborate on why such strains result in terrorism. Agnew offers his explanation by arguing that strains increase negative emotions, weaken social bonds, limit an individual’s ability to cope in legal ways, foster social learning of terrorism, and contribute to a collective response to the strain. Finally, Agnew highlights that existing strain-based explanations fail to explain why only a small number of individuals are impacted by the strain enough to commit an act of terrorism. As noted in the original general strain theory, a range of personal factors can influence an individual's likelihood of responding to strain with violence. Despite efforts to improve strain-based explanations of terrorism, it is evident that this theory does not explain violent extremism as neatly or as easily as common crime.

In the following sections, I argue that measures of strain usually found among offenders are significantly more or less common among homicide offenders and mass shooters. Further, I argue that these strains are equally seen among mass shooters and violent extremists. Due to data constraints, however, I am limited to only two measures of strain for the comparison of violent extremists and mass shooters: 1) low childhood socioeconomic status and 2) history of abuse.

Socio-Economic Status. Stemming from Rousseau's political arguments, strain theory has consistently emphasized income inequality as a predictor of crime. Merton (1938) theorized that individuals in poverty may not have the means to achieve the "American Dream" and may thus be pressured to turn to crime as a form of accumulating wealth or as a form of revenge or rebellion (Merton, 1938). While this notion is central to Merton's classic strain theory, socio-economic status (SES) plays a smaller role in Agnew's general strain theory. Nonetheless, anecdotal support for the role of economic strain in mass shootings exists. For example, the 2000 Edgewater mass shooting was committed by a disgruntled man after learning that his wages were going to be garnished (Kean, 2022). This shooter specifically targeted coworkers in the human resource department of his company.

Despite arguments for the relationship between economic status and criminal offending, research suggests that, at most, an individual's SES plays a modest role in the likelihood of committing a crime. Although some research finds a negative relationship between SES and delinquency, a review by Tittle and Meier (1990) challenges support for this notion. The authors argue that there is little support for the relationship and that the "circumstances under which individual SES plays a role in delinquency production remains elusive" (Tittle & Meier, 1990, p. 294). For instance, Fergusson et al. (2004) finds that childhood socio-economic disadvantage is associated with increases in crime, but this relationship diminishes when accounting for parental, school, and peer factors. Agnew (2015) challenges this finding by highlighting that *persistent* poverty and unemployment are strongly related to crime and that relative deprivation, as opposed to absolute measures of economic status, reveals more substantial effects.

Considering the complex relationship between economic status and criminal offending, I explore how childhood economic status compares between single-victim homicide offenders and mass shooters. Such analysis can not only help identify whether the two types of offenders come to crime through different paths but can also shed light on the importance of SES in crime in general. Returning to the assumption that mass shooters are unlike common homicide offenders because they are more expressive and planned in their criminal behavior, I argue that SES among the groups will be significantly different:

H5a: The percentage of mass shooters who come from a low SES will significantly differ from the percentage of homicide offenders who come from a low SES.

In the United States, low socioeconomic status (SES) can cause tremendous strain on individuals. This strain can lead people to commit instrumental crimes in hopes of getting ahead or expressive crimes as an outlet for frustration. Indeed, much of extremism is perpetrated by individuals with grievances – some of which may stem from economic issues (Callaway & Harrelson-Stephens, 2006; Robison et al., 2005; Stevens, 2002). However, previous work indicates that these perpetrators do not come from impoverished backgrounds.

For instance, various macro-level studies find that economic deprivation makes for a poor predictor of terrorist events (Abadie, 2006; Kurrild-Klitgaard et al., 2006; Piazza, 2006). This is also the case at the individual level with terrorists generally coming from wealthier backgrounds than common offenders (Krueger & Malečková, 2003; Russell & Miller, 1977; Sageman, 2004) Atran (2003) highlights that rational-choice theories based on economic opportunities, like general strain theory, fail to reliably explain some forms of violence such as hate killings or suicide terrorism.

Following the assumption that little difference exists between mass shooters and violent extremists, two perpetrators of planned expressive violence, I argue that the two will have no significant difference in terms of SES:

H5b: The percentage of mass shooters who come from a low SES will not significantly differ from the percentage of violent extremists who come from a low SES.

Family Structure. As previously mentioned, strains that impact social bonds are more likely to result in criminal activity. Family structure can thus play a pivotal role in the path to violent offending. Comanor and Phillips (2002) analyze data from the National Longitudinal Survey of Youth and discover that the presence of a father at home is by far the most critical factor impacting a male child's encounter with the criminal justice system. That is, boys with absent fathers are more likely to be charged with a crime than those with a present father. Likewise, several studies support the positive relationship between single-parent households and criminal offending (e.g., Antecol & Bedard, 2007; Demuth & Brown, 2004; Scott et al., 2022; TenEyck et al., 2023).

There are several ways to explain the relationship between family structure and criminal offending. Following the general strain theory, growing up in a single-parent household can increase the likelihood of crime by increasing the likelihood of turmoil, stress, or resentment in children. The economic hardships of living in a single-income home and any potential conflict that may have led to this family structure may place stress on a child. Further, social control theorists may argue that the absence of a parent can suggest a loss of a social bond that can instill prosocial skills and ideals.

Regardless of the explanation for the relationship, it is clear that family structure plays a vital role in the etiology of crime. Accordingly, this factor is crucial to understanding how the path to violence among mass shooters and homicide offenders differs. Considering their differences in classification, I argue that mass shootings and homicide offenders will come from different family structures:

H6: The percentage of mass shooters who come from a single-parent household will significantly differ from the percentage of homicide offenders who come from a single-parent household.

Parental Drug Use. Perhaps more detrimental than an absent parent is one who models negative behavior. Parental drug use can impact an individual's likelihood of offending for several reasons. According to general strain theory, parental drug use can be harmful as it can inflict parent-child separation, social stigma, or economic stress. Likewise, social control theorists argue that a parent's drug use can hinder the child's social bond with conventional society (Hirschi, 1969).

Theoretical arguments aside, parental drug use can have devasting impacts on children. Romanowicz et al.'s (2019) review of the literature reveals that parental substance abuse can negatively impact parent-child attachment and result in a child's hyperactivity, disruptive behaviors, lower intelligence scores, and developmental delays. Focusing on delinquency, Keller et al. (2002) conclude that children of substance-abusing parents experience household disruptions which lead them towards future offending and drug use. Likewise, using a sample of people undergoing treatment for crack cocaine use, Caudill et al. (1994) find that those with a parental history of substance abuse report more antisocial personality disorders, more drug use, and significantly higher rates of arrest

Considering the substantial evidence, I argue that parental drug use is an important risk factor for criminal offending. Assuming that background characteristics commonly seen among criminal offenders will be different between mass shooters and other homicide offenders, I argue that parental drug use will be significantly different in two groups of offenders:

H7: The percentage of mass shooters with parents who have a drug use history will significantly differ from the percentage of homicide offenders with parents who have a drug use history.

Parental Criminal History. Much like parental drug use, a parent's criminal history can drastically impact a child's life. systematic reviews and meta-analyses of the literature reveal a strong and significant association between parental incarceration and children's antisocial behavior (Murray et al., 2012; Murray & Farrington, 2008). Though explanations for this relationship vary from genetic factors to stigma, to social modeling, strain theorists would argue that parental criminal history or incarceration can lead to substantial stressors such as financial instability, absence of a parent, or changes in living conditions. These stressors would, in turn, lead a child to feel angry or frustrated, leading to violence or criminal coping. Further, this strain could weaken a child's social bonds to their parents, family, or school, heightening its impact on future offending.

There is a large amount of support for the positive relationship between parental and child offending (Aaron & Dallaire, 2010; Besemer et al., 2017; Dallaire, 2007; Dannerbeck, 2005, 2005; Kjellstrand & Eddy, 2011). I argue, however, that this relationship may be different for single-victim homicide offenders and mass shooters:

H8: The percentage of mass shooters with parents who have a criminal history will significantly differ from the percentage of homicide offenders with parents who have a criminal history.

Physical or Sexual Abuse. Agnew (1992) argues that strains that are perceived as severe, perceived as unjust, impact social bonds, or are easily resolved through crime are more likely to induce a criminal reaction. Because abuse can be characterized as most of these things, it is likely strongly associated with crime. In fact, of all the potential strains, physical or sexual assault appears to be the most consequential with assault leading to various adverse mental health consequences such as depression, PTSD, suicidality, aggression, substance abuse, and other psychiatric conditions (Afifi et al., 2014; Archambault et al., 2023; Cheung et al., 2018; Newbury et al., 2018; Norman et al., 2012; Turner et al., 2006). According to strain theory, some individuals may turn to crime and violence to cope with these adverse outcomes.

This argument is well supported, with numerous studies indicating a strong relationship between victimization and future crime (Agnew, 2002; Barbieri et al., 2019; Hay & Evans, 2006; Lin et al., 2011; Watts & McNulty, 2013). Again, however, I argue that a trait commonly seen in traditional criminals may not be equally seen in mass shooters:

H9a: The percentage of mass shooters with a history of abuse will significantly differ from the percentage of homicide offenders with a history of abuse.

Although the relationship between abuse and later offending is well-established (Agnew, 2002; Barbieri et al., 2019; Hay & Evans, 2006; Lin et al., 2011; Watts & McNulty, 2013), only a few studies examine the relationship between abuse and violent extremism. In a recent study, Logan et al. (2024) explore life-history interviews of former left-wing and right-wing extremists in the United States. Drawing on life-course criminology, the authors highlight the paths from childhood adversity to adolescent misconduct to eventual radicalization. The authors find that 40% of the entire sample of extremists have experienced physical abuse and 15% experienced sexual abuse. Importantly, the authors use this measure as only one form of collective childhood adversity. Logan et al. (2024) find that adolescent conduct problems are often a byproduct of adversity or strain in childhood combined with little to no social support. Through interviews, the authors conclude that many abused extremists perceive the world to be unpredictable and develop a hostile view of their society. For many, an extremist group offers a support system and outlet for aggression. This conclusion echoes Simi et al.'s (2016) findings that 43% and 23% of former members of interviewed violent White supremacist groups experienced physical and sexual abuse, respectively.

Despite evidence that extremists experience traumatic adversity like physical or sexual assault, there is little to suggest that they experience more or less than the general public or other types of criminals like mass shooters. One notable exception is Becker's (2021) comparison of violent and nonviolent extremists. Looking at childhood abuse, the author fails to find a significant difference in rates of childhood assault between extremists who commit violence and those who do not. Thus, I argue that there is no distinction between mass shooters and violent extremists in terms of this measure of strain:

H9b: The percentage of mass shooters with a history of abuse will not significantly differ from the percentage of violent extremists with a history of abuse.

Chapter 4: Comparing Mass Shooters to Perpetrators of Homicides

In the previous chapter, I discussed how mass shootings relate to other types of violence. Specifically, I offered a way to classify various forms of violence like mass shootings, single-victim homicides, and violent extremism. I argued that mass shootings are unlike more traditional forms of homicide because they differ in terms of motivation and level of planning. I thus argued that the offenders of these crimes must also significantly differ. Pulling from two contemporary theories, I outlined several hypotheses suggesting that mass shooters and homicide offenders go down significantly different paths to violence. In this chapter, I test and report the methods and results of those hypotheses.

Data Sources

For this analysis, I utilized two databases: the Violence Project's (VP) mass shooter database and the Bureau of Justice Statistics' (BJS) Survey of Prison Inmates. In Chapter 2, I discussed the VP's mass shooter database in detail. Here, I focus on introducing and describing the BJS's Survey of Prison Inmates (SPI). I conducted most of the analyses in this chapter using the latest available version (2016). Conducted periodically, the SPI is a cross-sectional survey of sentenced individuals 18 and older in federal and state prisons. This survey is conducted face-to-face with interviewers being guided by a computer survey. In cases where variables were missing from the 2016 survey, I substituted data from the 2004 survey.

Compared to other sources of homicide data (i.e., the FBI's supplementary homicide report or the CDC's national vital statistics system), the SPI offers an abundance of detailed life history data on offenders. Variables include demographic characteristics, current offense and sentence, incident characteristics, criminal history, socioeconomic characteristics, family background, drug and alcohol use and treatment, mental and physical health and treatment, and current facility rule violations.

The SPI employs a stratified two-stage sample design in which U.S. prisons are selected in the first stage, and individual prisoners within selected prisons are sampled in the second stage. In the 2016 survey, 385 prisons (324 state and 61 federal) were selected from a possible 2001 (1,808 state and 193 federal). Of these, 264 prisons participated, with 306 being state prisons and 58 being federal prisons. Over 37 thousand individuals from these prisons were selected for the survey, but only 24,848 people (70%) participated. Of all participants, 3,377 (13.6%) committed some form of murder with 2,724 (80.1%) of these cases being a single-victim murder. For this dissertation, I focus on single-victim homicide offenders to reduce the likelihood that these offenders are failed mass shooters or mass shooters by any other definition that has a lower fatality threshold.

Analytical Strategy

To compare mass shooter and homicide offender backgrounds, I began by assessing how the two groups differ in terms of basic demographics such as gender, race, immigration status, and age at crime. More importantly, however, I conducted several empirical tests focused on theory-guided background characteristics. Stemming from social control and strain theories, I assessed the differences in parenthood, education, employment, military history, childhood socio-economic status, family structure, parental drug use, parental criminal history, and history of physical or sexual assault.

All key variables used for comparison were dichotomous measures. Parenthood, for instance, indicated whether the offender had a child at the time of their crime (0=no, 1=yes). Likewise, education measured whether the individual has a high school degree or equivalent.

Although employment measured whether a mass shooter had a job when they committed their crime, for homicide offenders, this variable indicated whether the offender had a job during the month prior to their arrest. Military history refers to official service in any military branch. Individuals who joined but failed training did not have a military history. To have low childhood socio-economic status, mass shooters must have been “lower class,” and homicide offenders must have reported receiving welfare or public assistance during their childhood. Family structure was measured by living with, or being raised by, a single parent before the age of 18. Parental drug use measured whether the offender’s parent exhibited substance abuse including alcohol. Notably, this variable is missing from the 2016 SPI, so I used the 2004 version for chi-square tests. For the homicide sample, parental criminal history indicated whether the offender’s mother or father has ever been sentenced or incarcerated for a crime. For mass shooters, this variable measured whether there is evidence that a parent has been arrested, convicted, or given a restraining order. Finally, abuse measures whether the offender has ever been physically or sexually abused in the past.

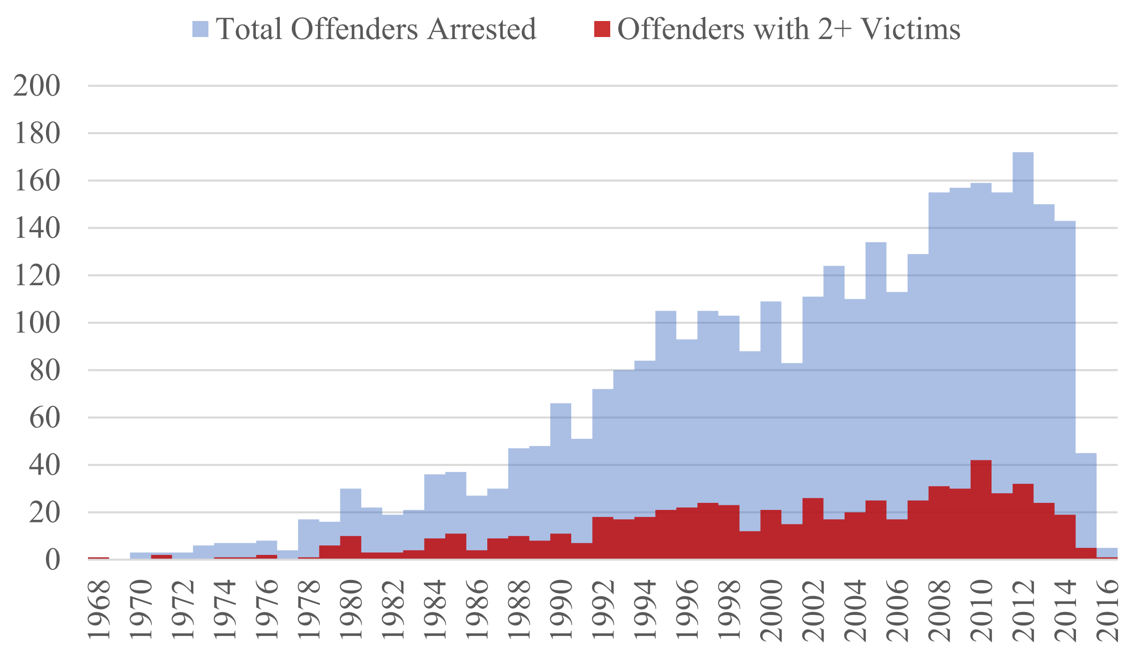
To determine whether mass shooters differ significantly in terms of key variables from homicide offenders, I conducted bivariate and multivariate tests. First, I conducted a chi-square test for each variable. Chi-square goodness of fit tests were most appropriate for this analysis as they determine whether an observed proportion (e.g., the proportion of mass shooters who had low SES) is significantly different from an expected proportion (e.g., the proportion of mass shooters who have had low SES if mass shooters were the same as homicide offenders). Notably, Lankford et al. (2021) use this approach to find significant differences between public mass shooters, the general population, homicide offenders, and people who die by suicide.

Further, I combined both groups and conducted a multivariate logistic regression to predict offender type (0=homicide offender; 1=mass shooter). Fridel (2022) utilizes this method to compare the odds of an offender committing mass murder relative to homicide. This type of analysis helps identify significant areas of variation between mass shooters and homicide offenders while controlling for other variables such as offender demographics and year of event/arrest.

Results

Of the 3,377 homicide offenders in the 2016 survey of prison inmates, 2,724 (80.7%) had one victim, while the remainder had two or more (653; 19.3%). As mentioned, I focus on single-victim homicide offenders to reduce the likelihood that these offenders are failed mass shooters or mass shooters by any other definition. Among those who reported more than one victim, 94 (14.4%) reported having four or more victims. Further, 28.5% of all offenders were strangers to their victims. Of those who reported knowing their victims, 18.4% were friends or ex-friends, 10.8% were spouses, and 9.8% were boyfriends/girlfriends. While the year of offense was unavailable, Figure 4.1 depicts the distribution of homicide offenders by arrest date.

Figure 4.1. Homicide offenders annually arrested by victim count, 1968-2016.



Roughly half of the individuals in this sample were arrested after 2003, with the lengthiest prison stay dating back to a 1968 arrest date. Offenders with two or more victims consistently make up around 20% of the total sample each year. While not directly related to the purpose of this chapter, these statistics contextualize the homicide sample, particularly as it relates to the mass shooter population. That is, offenders in this sample likely committed their crimes during a slightly different time period than the mass shooter sample. Homicide offenders committed their crimes between 1968 and 2016 while mass shooters committed their crimes between 1966 and 2023. Additionally, Figure 4.1 suggests that, unlike mass shooters, this sample may be impacted by attrition or release from prison. Nonetheless, this sample still offers critical information.

Offender Descriptive Statistics

In Table 4.1, I display basic demographics for the mass shooting population and the single-victim homicide offender sample. Women were more common in this sample, with a quarter of single-victim murderers being female. By contrast, only 3% of the mass shooters were female. Homicide offenders were also more diverse in terms of race and sexual orientation with larger percentages of Black offenders.

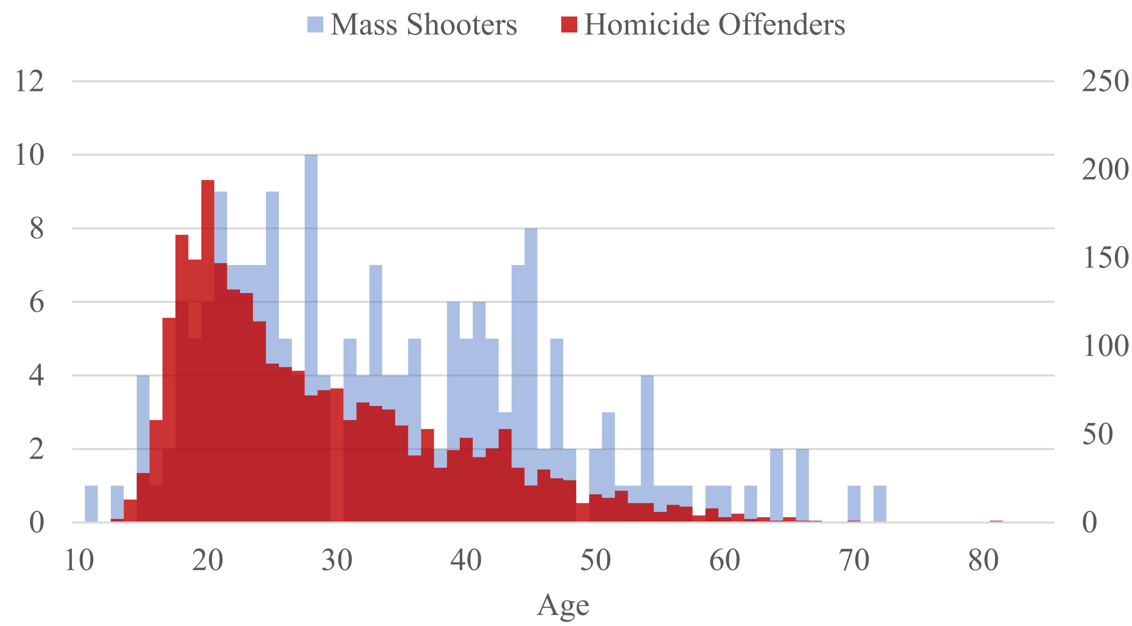
Table 4.1. Offender demographics.

	Mass Shooters	**Homicide Offenders**
n	193	2724
% Male	97	75
% White	55	40
% Black	22	49
% Immigrant	16	5
Avg. Age	33.9	28.5

As mentioned in the previous chapter, mass shooters ranged from 11 to 72 years old, with an age of 33.9 (SD=12.8) and a mode of 28. For the homicide sample, age at arrest ranged from 13 to 81 years old, with an average of 28.48 (SD=10.46) and a mode of 20. To find the age at arrest, I first calculated the number of years each person had been incarcerated at the time of the survey. I then subtracted years imprisoned by the reported age at the time of the survey to get an estimated age at arrest. There were 67 observations with missing years of arrest.

I depict the skewed distribution of this variable in Figure 4.2. Notably, unlike the seemingly bimodal distribution seen in mass shooters, homicide offenders commonly commit their crimes in their early 20s. This pattern mimics the long-standing age-crime distribution seen in other forms of crime (Hirschi & Gottfredson, 1983). Though purely descriptive, this finding suggests that mass shooters' lives may look different than those of ordinary homicide offenders.

Figure 4.2. Distribution of homicide offender and mass shooter ages at arrest or shooting.



Comparative Analysis

Descriptive statistics offer great insight into offender groups. However, the purpose of this chapter is to determine whether mass shooters and single-victim homicide offenders significantly differ in their etiological paths toward violence. In the previous chapter (Chapter 3), I claim that mass shooters and homicide offenders differ in terms of key social control variables because mass shootings, by definition, cannot be classified as spontaneous or instrumental – like most other forms of homicide. To assess the differences between the groups, I conducted a chi-square test for each key variable of interest. In Table 4.2, I provide the results.

Table 4.2. Chi-square results comparing mass shooters and homicide offenders.

	Homicide Offenders		Mass Shooters		Chi2
Variable	Mean	SD	Mean	SD	p-value
% Parent	68.00	46.65	29.19	45.59	0.00***
% with a High School Degree	36.98	48.29	80.71	39.60	0.00***
% Employed	60.26	48.94	41.99	49.49	0.00***
% with Military Service	9.58	29.44	22.80	42.06	0.00***
% with Low Childhood SES	43.46	29.90	41.30	49.42	0.62
% from Single-Parent Household	46.12	49.86	12.44	33.08	0.00***
% with Parental Drug History	35.97	48.01	7.77	26.84	0.00***
% with Parental Criminal History	29.32	45.53	9.84	29.87	0.00***
% with Evidence of Abuse	27.74	44.79	13.47	34.23	0.00***

*<.1, **<.05, ***<.01

Of the nine key variables, mass shooters and homicide offenders significantly differed in eight. Compared to homicide offenders, mass shooters were significantly more likely to have a high school degree and have military experience. Mass shooters were also significantly less likely to have a single-parent household, have a parent with a drug or criminal history, or have a history of physical or sexual abuse. I found no significant difference in terms of childhood SES. Several factors can play a role in this null finding. Although there are some methodological considerations (i.e., sample size, power, and measurement issues), SES may simply be less effective in differentiating offender types as originally theorized. Finally, mass shooters were significantly less likely to be parents or be employed when compared to homicide offenders. I dive deeper into these finding in the sections below.

To assess the independent effects of each variable while controlling for any potentially confounding factors, I conducted a multivariate logistic regression. Specifically, I created a model predicting group membership using key background characteristics as independent variables. I also created a secondary model that accounts for general demographics and the year of event/arrest. Due to their exclusion from the 2016 sample, I could not include parental drug history and evidence of abuse in these models. Nonetheless, this analysis offers insight into the relationship between key variables and the type of violence used. Table 4.3 displays two models predicting offender type among the combined sample of mass shooters and single-victim homicide offenders. Model 1 is limited to the key variables discussed in the bivariate analysis while Model 2 introduces basic demographic characteristics[2].

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[2] See Appendix 1 for a multicollinearity test. A variance inflation factor test revealed that collinearity among variables is not a significant issue (VIF<10).

Table 4.3. Logistic regression models predicting mass shooting group membership.

	Model 1		**Model 2**	
	Odds Ratio	Robust SE	Odds Ratio	Robust SE
Parent	0.10***	0.03	0.15***	0.04
High School Degree	7.01***	1.88	6.28***	1.66
Employed	0.26***	0.06	0.26***	0.07
Military Service	2.27***	0.59	2.19**	0.71
Low Childhood SES	1.54*	0.37	1.79**	0.46
Single-Parent Household	0.19***	0.06	0.20***	0.06
Parental Criminal History	0.41***	0.14	0.44**	0.15
Year			1.03*	0.02
Age			1.00	0.01
Male			18.51***	13.38
White			2.21***	0.55
Immigrant			3.38***	1.30
Constant	0.10***	0.02	0.00*	0.00

*<.1, **<.05, ***<.01

Social Control. Social control theories state that individuals are held back from their natural tendencies to commit crimes by social bonds. When these bonds are weak or broken, the individual is free to act on their own accord and may thus commit a crime. Below I discuss the results of each variable gathered from the social control theories: Parenthood, Education, Employment, and Military Experience.

Parenthood. While parenthood may deter some from committing crime, I argue that this may not be as applicable to mass shootings as it is to homicides. In Hypothesis 1a, I posit that homicide offenders and mass shooters will significantly differ in terms of parenthood. When compared to homicide offenders, mass shooters were significantly less likely to be parents. Specifically, 68% of homicide offenders had children compared to 29% of mass shooters. This finding holds even when controlling for other key variables and demographics ($p < .01$).

This finding suggests that, if parenthood is an important form of social bond, mass shooters represent a more extreme version of single-victim homicide offenders who have even less social control. Indeed, prior research shows that mass shooters are socially isolated and often suffer from mental health issues (Lankford & Silva, 2021). These traits may make parenthood less likely among mass shooters when compared to other criminals like single-victim homicide offenders.

Education. Social control theorists argue that education can deter individuals from offending because it offers a means to conventional success, promotes commitment, and instills prosocial beliefs. Weak or broken social bonds to education may increase an individual's risk of offending. I argue that risk factors of crime, like low education, may be more or less prevalent among homicide offenders than mass shooters. Supporting Hypothesis 2a and previous work by Capellan and Gomez (2018), I found that mass shooters were significantly more likely than homicide offenders to have a high school degree. Models 1 and 2 further support the notion that education can be used as a distinguishing factor between the two groups of offenders. Specifically, I found that offenders with at least a high school degree were five to six times more likely to be mass shooters than homicide offenders.

This finding contradicts assumptions about educational attainment and crime. Education alone may not be a suitable protective factor against committing mass violence. In fact, higher levels of education among mass shooters may be correlated with the skills needed to plan and orchestrate such heinous acts. By comparison, single-victim homicides may not require as much planning and are more likely spontaneous. Consequently, actions taken to curb offending through educational achievement may not be effective in preventing a future mass shooting.

Employment. Like education, employment can serve as an indicator of commitment to prosocial goals. Employment can deter individuals from crime by increasing involvement in conventional activities and thus reducing the opportunity for crime. Likewise, employment offers financial benefits that may reduce the appeal for instrumental crime. Supporting Hypothesis 3a, I found that mass shooters significantly differed from homicide offenders in terms of employment. Specifically, compared to homicide offenders, mass shooters were less likely to be employed during the time of the criminal act. Multivariate models revealed that mass shooters were roughly 75% less likely than homicide offenders to be employed.

A reason for this finding may stem from the motives of mass shootings. While homicides may be a result of other crimes getting out of hand, prior research shows that mass shootings are often premeditated and motivated by emotional triggers like divorce or job loss (Lankford et al., 2021; Taylor, 2018). In fact, Taylor (2018) shows that 51% of mass shootings between 2007 and 2011 were sparked by such events. Thus, a significantly greater presence on employment issues among mass shooters may be warranted when compared to single-victim homicide offenders.

Military Experience. Finally, military experience can offer would-be offenders structure, financial stability, and paths to other social bonds like employment and education. Again, I argue that this social bond measure may look different for mass shooters than for homicide offenders. A chi-square test and a logistic regression supported Hypothesis 4a. Mass shooters were significantly more likely than homicide offenders to have military experience. Even after controlling for other key and control variables, offenders with military experience were twice as likely to be mass shooters than homicide offenders.

This finding adds to the body of work that suggests an overrepresentation of ex-military personnel in mass shooter and violent extremist samples (Clemmow et al., 2022; Gill et al., 2021; Pyrooz et al., 2018). Though this may be a byproduct of social control theory failing to depict mass shooters as accurately as homicide offenders, this finding can be indicative of a broader issue within military culture. That is, exposure to combat or desensitizing military training may influence the likelihood of engaging in mass violence by producing trauma or increasing access to firearms.

Strain. While social control theorists argue that people are held back from committing crime via social bonds, strain theories posit that people are pushed towards crime by social pressures. Namely, adverse life events can increase the likelihood of turning to crime to alleviate or cope with the strain. Because mass shootings and single-victim homicides are different in terms of motivation and planning, I argue that this theory may differentially apply to homicide and mass shooting offenders. Thus, mass shooters should experience different levels of objective strain than homicide offenders.

Socioeconomic Status. As discussed in Chapter 2, I argue that mass shootings are expressive yet planned rather than instrumental or spontaneous. Because of this, mass shootings are unique compared to more traditionally studied crimes like single-victim homicides. Because strain theories are typically used to explain common crime, homicide offenders and mass shooters will exhibit different levels of strain. Low childhood socioeconomic status, for example, may be more prevalent among homicide offenders than mass shooters as low economic status may inspire more instrumental or financially motivated crimes (e.g., robbery, burglary). On the other hand, low childhood SES may be more prevalent among mass shooters than homicide offenders because low SES may further marginalize potential offenders of extreme crimes.

Despite a null finding in the chi-square test, the multivariate analysis revealed significant results. After controlling for key background characteristics, mass shooters were significantly more likely to have a low childhood SES when compared to homicide offenders. This significant finding indicates that other key background characteristics might have been confounding the relationship in the bivariate analysis.

This finding suggests that low childhood SES may contribute to a potential shooter's feeling of marginalization. Mixed with potential psychological disorders, these individuals may be more likely to act out in planned extreme violence rather than a spontaneous single-victim homicide. Nonetheless, this finding highlights that mass shooters are distinct from traditional homicide offenders.

Family Structure. According to strain theories, a child's early environment and parental figures can also lead to strain and future criminal behavior. Using strain theories to identify other key correlates of crime, I hypothesize that mass shooters are significantly different than homicide offenders in terms of family structure. Supporting Hypothesis 6, the bivariate analysis revealed that mass shooters were significantly less likely than single-victim homicide offenders to be raised in a single-parent household. Likewise, Models 1 and 2 support this notion. After controlling for other variables, offenders from single-parent households were 80% less likely to be mass murderers than homicide offenders.

This finding challenges the common assumption that individuals from single-parent households are more susceptible to crime due to a lack of supervision, trauma stemming from neglect, or financial hardships. I maintain that this significant difference between groups can be attributed to their relationship to instrumental motives. For instance, a single-parent home can be a stressful environment for children during their formative years. The economic and emotional turmoil associated with this family structure may leave an individual strained with few skills to achieve goals in prosocial ways. This combination can contribute to instrumental crimes, including homicide, as a means to overcome strain. Mass shootings, however, are far more expressive and may not entail the same path to violence. Compared to traditional murderers, mass shooters are more likely to come from a two-parent household. This finding indicates that shooters may have more of the resources and stability needed to acquire firearms and plan a mass casualty attack as opposed to single-victim homicide.

Parental Drug Use. Like an absent parent, a parent with a criminal record can place strain on children in their formative years. I argue that while this may play a role in committing homicide, it may not be the same for mass shootings. Although this variable was excluded from the multivariate regression, using a chi-square test, I found that mass shooters were significantly less likely to have parents with drug histories (H7). This finding suggests that mass shooters may not follow the same path as traditional homicide offenders.

The low prevalence of parental drug use among mass shooters could indicate a stable and controlled home environment. This stability could be a factor in the meticulous planning seen in mass shootings. By comparison, homicide offenders may come from more chaotic homes characterized by parents with drug use.

Parental Criminal History. As with parental drug use, parental criminal history can play a critical role in an individual's life. I argue that while a parent's criminal history may contribute to a child's future homicide offending, it is not as relevant in the path to mass shootings. Thus, mass shooters and homicide offenders may exhibit different rates of parental criminal history.

Supporting this notion, I conclude that mass shooters were significantly less likely to have parents with criminal histories (H8).

This finding suggests that while parental criminal history may be used to identify at-risk youth, it may not be as effective in identifying those who will go on to commit a mass shooting. Indeed, only 10% of mass shooters have parents with a known criminal record. Thus, while various theorists argue that a parent's criminal behavior may lead to their child's future offending, I do not find this to be the case for mass shooters.

Physical or Sexual Abuse. Finally, abuse or similarly traumatic events are consequential when it comes to mental health, aggression, substance abuse, and future offending. Again, I argue that histories of abuse may be different among homicide offenders and mass shooting offenders because mass shootings are motivationally and behaviorally different from typical single-victim homicides. The chi-square test supported Hypothesis 9a and revealed that physical or sexual abuse is more prevalent among homicide offenders than mass shooters.

While violent offending may be a form of coping with these adverse outcomes, this finding indicates that mass shooters may follow a different path toward violence that does not always include assault. Instead, shooters may experience other forms of abuse such as psychological or emotional abuse that may not be captured here. Alternatively, mass shooters may be better at concealing their abuse than single-victim homicide offenders. Due to the sensitive nature of this topic, accurate measures of abuse may be hard to come by.

Summary. To summarize, chi-square tests revealed that mass shooters and homicide offenders were significantly different in all but one variable (SES). Using a multivariate logistic regression to predict mass shooting group membership (Model 1), I found that offenders who did not have children, had at least a high school degree, were not employed, had military experience, had a low childhood SES, did not come from a single-parent household, and did not have a parent with a criminal history, were significantly more likely to be mass shooters than homicide offenders. In a second multivariate logistic regression (Model 2), I incorporated general demographic information as controls. This model revealed that all key variables played a significant role in predicting group membership. Thus, bivariate and multivariate analyses reveal support for all nine hypotheses.

Overall, these findings suggest that mass shooters and homicide offenders are significantly different and are potentially guided to violence by different mechanisms. Although social control variables were not as consistent, compared to ordinary homicide offenders, mass shooters experience relatively less strain as measured by several common variables. This finding challenges our current theories and could potentially indicate a relationship between greater resources/stability and planning for more severe forms of violence than a single-victim homicide. I discuss the implications and limitations of this analysis in greater detail in Chapter 7.

Chapter 5: Comparing Mass Shooters to Perpetrators of Violent Extremism

In the previous chapter, I established mass shootings in the context of traditional single-victim homicides. I concluded that mass shooters and single-victim homicide offenders significantly differed in several ways. In this chapter, I assess how mass shooters relate to a similarly marginalized offender type in criminology: violent political extremists. Specifically, I tested the hypothesis that, compared to violent extremists, mass shooters do not have significantly different levels of social bonds and objective strains because they fall closer to single-victim homicides in the motive/method continua of violence. While a comparison between homicide offenders and violent extremists may be informative, this dissertation's focus is on mass shootings and their place in the field. Thus, this chapter is limited to comparing mass shooters to violent extremists.

I begin this chapter by elaborating on the type of individuals found in the National Consortium for the Study of Terrorism and Responses to Terrorism's (START) Profiles of Individual Radicalization in the United States (PIRUS) database and how they relate to those captured in the VP database. I then provide descriptive statistics for each group of potential mass murderers in PIRUS and conclude with an analysis comparing the two types of offenders.

Data Sources

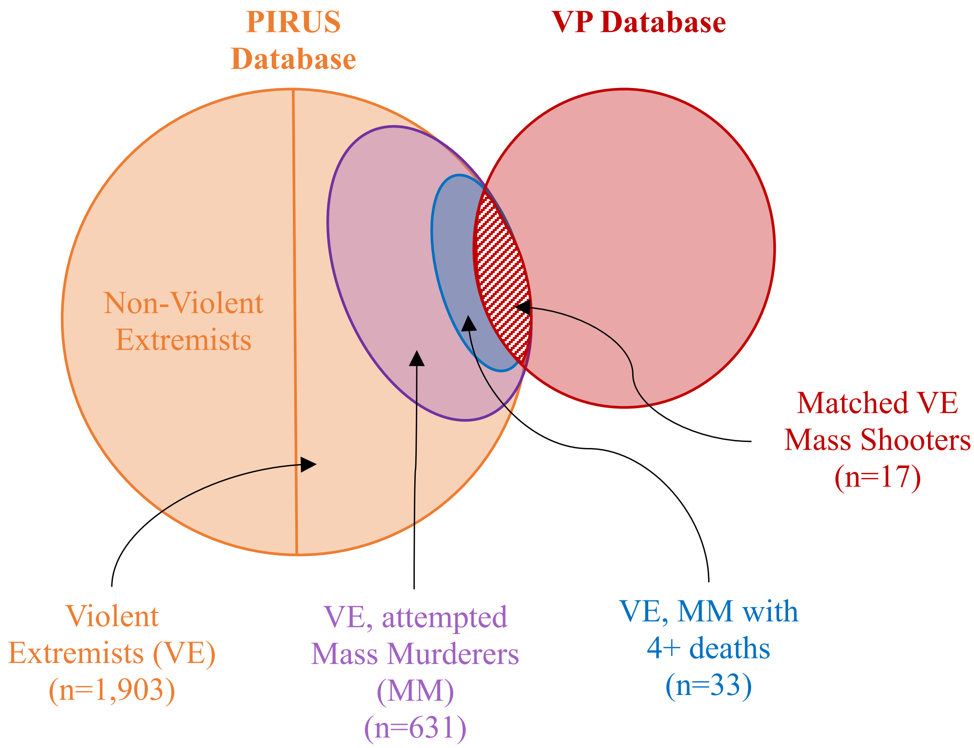
As with the comparison between mass shooters and homicide offenders, I used the Violence Project's mass shooter database to gather information about mass shooting perpetrators. For the violent extremist sample, I used the PIRUS database. PIRUS offers individual-level information on individuals who adhere to and espouse far-right, far-left, Islamist, or single-issue ideologies in the United States. To be included in PIRUS, extremists radicalized in the United

States must have been arrested, indicted of a crime, killed as a result of their ideological activities, a member of a terrorist organization, or "associated with an extremist whose leader(s) or founder(s) has/have been indicted of an ideologically motivated violent offense" (START, 2023). Like the VP mass shooter database, PIRUS relies on open-source material to measure various background characteristics like extremist demographics, group memberships, political/religious beliefs, radicalization methods, and criminal history. Importantly, PIRUS is a database that samples known radicalized extremists and does not encompass the entire extremist population.

As discussed in Chapter 3, mass shootings and violent extremism often overlap due to their broad definitions. Given their sampling frame, cases in PIRUS may also be found in the VP mass shooter database. Both samples reflect expressive violent offenders rather than common criminals. To create and compare two distinct groups, however, I first address this overlap.

The most current version of PIRUS contains information on 3,203 extremists identified between 1950 and 2021. Because this study focused on mass shootings compared to other forms of violence, I limited the PIRUS sample to 1,903 (59.41%) individuals who are coded as violent extremists. In PIRUS, an extremist is considered violent if they are involved in a plan to cause death or injury to another individual. This plan is not required to have been successfully executed to be included in the sample. Additionally, PIRUS includes information about extremists who attempt mass casualty events after 1990. Since 1990, 631 violent extremists intended to commit a mass casualty event in which four or more victims were killed or injured. Using this threshold, 91 (14.4%) succeeded in their plans. Among these 91 radicalized individuals, 33 (36%) successfully killed four or more victims–the threshold used for inclusion in the VP database. Figure 5.1 depicts the overlap between the two databases.

Figure 5.1. Structure and overlap between PIRUS and the VP Databases.



Notably, not all of PIRUS's successful mass murderers are included in the VP database. Only 17 of the 33 successful mass murderers in PIRUS can be found in the VP database. The remaining 16 radicalized mass murderers not included in the VP database may have used a weapon other than a firearm. Similarly, the VP mass shooters excluded from PIRUS may not have been associated with extremist organizations, ideologically motivated, or may have occurred before 1990. Due to incomplete data, I cannot conclude why some cases are excluded from either database. In this chapter, I primarily focus on comparing mass shooters to violent extremists. To ensure these two groups are distinct, I exclude 17 matched observations (PIRUS n = 1,886). While these 17 matched observations could have remained in either one of the samples, I exclude them entirely to allow for a clearer comparison and ensure that the overlap does not lead to misinterpretation of the unique characteristics of each group.

Analytical Strategy

To compare mass shooter and violent extremist backgrounds, I replicated the steps of analysis described in Chapter 4. I used descriptive statistics, chi-square tests, and multivariate logistic regressions to compare mass shooters and a sample of violent extremists. While intended to identify further where mass shootings fall in the spectrum of violence, this analysis also addresses the issue of defining mass shootings by incorporating a comparison group that may have been similarly motivated but did not reach the four or more fatality threshold or may not have used a firearm to commit their mass murder.

Due to missing measures in PIRUS, this empirical comparison focuses on six of the nine dichotomous key variables inspired by the strain and social control theories: parenthood, education, employment, military history, childhood socioeconomic status, and history of physical or sexual assault. All variables are measured in the same way as in Chapter 4, with some exceptions. In this comparison, employment indicated whether an extremist held a job when their plots or associations were exposed to the public. For mass shooters, this variable was a marker of employment at the time they committed their shooting. Further, while the VP database measures abuse through a history of physical or sexual assault, PIRUS includes cases of verbal abuse in this measurement.

Results

Of the 1,903 violent extremists in PIRUS, 1,886 were not successful mass shooters, as defined by VP. However, 896 (48%) of these non-mass shooters successfully executed their violent plots with 16 resulting in four or more deaths. Although PIRUS currently does not include data on weapon types, I assumed these 16 successful mass murders were committed with weapons other than firearms as this might explain why they are excluded from the VP database.

Notably, PIRUS contains information on attempted mass casualty events. Of the 1,886 violent extremists not found in the mass shooting database, 58 intended to commit mass murder but failed to complete the plan. These statistics illustrate that PIRUS captures incidents that may be similar to mass shootings but fail to meet all criteria, for example, fatality count or weapon type.

Offender Descriptive Statistics

Demographically, mass shooters and violent extremists have some similarities (see Table 5.1). Both groups were almost exclusively male. Violent extremists had a slightly higher percentage of White offenders than mass shooters (68% vs. 56%) and a lower percentage of Black offenders (15% vs. 21%). By contrast, homicide offenders had different demographics than mass shooters, with 40% White and 49% Black. Further, 11% of violent extremists were immigrants compared to 16% of mass shooters. Only 5% of single-victim homicide offenders were immigrants.

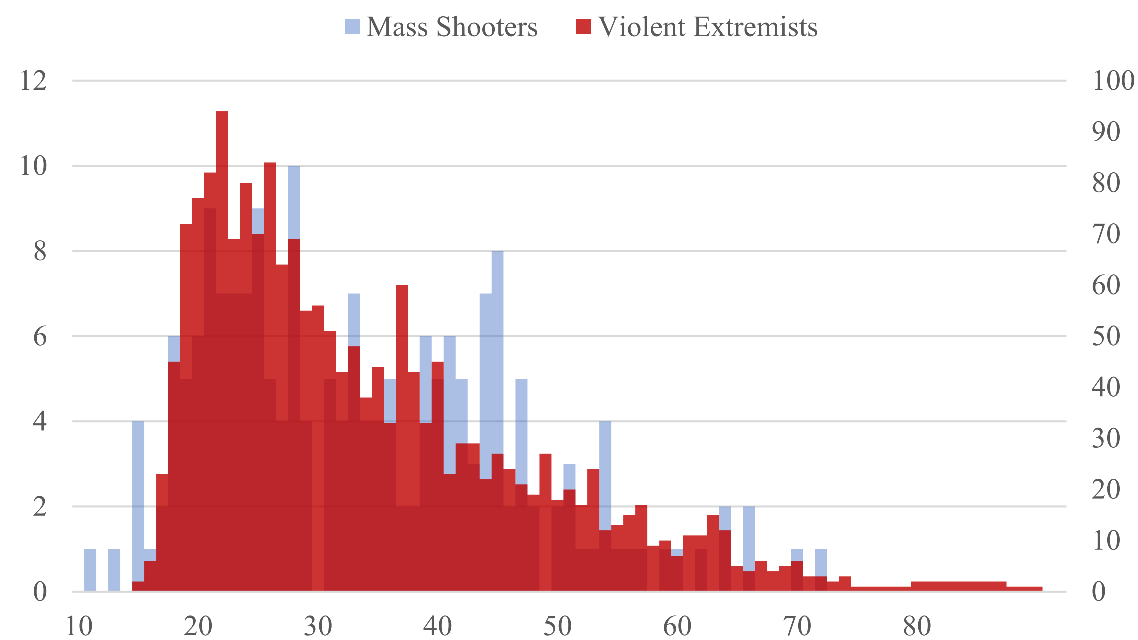
Table 5.1. Offender demographics.

	Mass Shooters	**Violent Extremists**
n	193	1903
% Male	97	93
% White	55	68
% Black	22	15
% Immigrant	16	11
Avg. Age	33.9	33.6

Figure 7.2 depicts the age of violent extremists in this sample when exposed to the public. Of violent extremists with known age, the mean was 33.57 years (*SD* = 12.9), and the

mode was 22. Though slightly more positively skewed, this distribution resembles the mass shooting population (*M* = 33.9; mode = 28), despite a noticeable spike in middle-aged mass shooters.

Figure 5.2. Distribution of violent extremist ages at date of exposure.



In all, these demographic comparisons suggest that mass shooters and violent extremists may share similar profiles, which could reflect common social or developmental factors influencing their behavior. By contrast, mass shooters and homicide offenders differed in their characteristics, indicating a potentially different path to violence. This analysis is only descriptive; the inferential analyses in the following section provide additional insight.

Comparative Analysis

Understanding how mass shootings relate to other forms of violence is a crucial first step in improving etiological explanations. In Chapter 3, I argued that mass shootings are similar to violent extremism because they tend to be more expressive and planned than other forms of violence, such as single-victim homicides. Nonetheless, mass shootings and acts of violent extremism are not identical. In this study, violent extremism, unlike mass shootings, is not limited to a particular weapon type or fatality count. To assess the relationship between the two, I empirically tested the differences between the two groups based on key criminological variables associated with social control and social strain theories. To do this, I first conducted chi-square tests, focusing on the key variables for the study. Table 5.2 displays the results of these tests.

Table 5.2. Chi-square results comparing mass shooters and violent extremists.

	Violent Extremists (n=1,886)		**Mass Shooters (n=176)**		**Ch2**
Variable	Mean	SD	Mean	SD	p-value
% Parent	37.19	48.35	30.36	46.12	0.00*
% with a High School Degree	85.67	35.06	80.00	40.16	.097*
% Employed	64.59	47.85	41.82	49.48	0.00***
% with Military Service	19.13	39.34	22.16	41.65	0.34
% with Low Childhood SES	21.32	40.99	42.62	49.66	0.00***
% with Evidence of Abuse	4.98	21.77	13.64	34.42	0.00***

*<.1, **<.05, ***<.01

Notably, mass shooters and violent extremists significantly differed on three of the six key variables at least at a .05 level. Compared to violent extremists, mass shooters had lower rates of employment and higher rates of low childhood SES and abuse. At a .1 level of significance, mass shooters were less likely to be parents and have at least a high school degree. The two groups were not significantly different in terms of military experience.

Further, as with the comparison between mass shootings and homicide offenders, I created multivariate logistic models to predict offender group membership based on these key variables. Table 5.3 displays these models. I devised Model 1 to predict whether an observation is a mass shooter solely based on key variables and Model 2 to incorporate demographic characteristics as controls.

Table 5.3. Logistic regression models predicting mass shooting group membership.

	Model 1		Model 2	
	Odds Ratio	Robust SE	Odds Ratio	Robust SE
Parent	0.48**	0.14	0.39**	0.14
High School Degree	1.01	0.33	1.09	0.41
Employed	0.42***	0.10	0.39***	0.10
Military Service	1.12	0.33	0.77	0.24
Low Childhood SES	1.95**	0.57	1.65	0.54
History of Abuse	1.75*	0.58	1.90*	0.68
Year			0.95***	0.01
Age			1.02*	0.01
Male			7.32*	7.55
White			1.14	0.34
Immigrant			1.10	0.42
Constant	0.33***	0.11	2.03e44***	3.87e+45

*p<.1, **<.05, ***<.01

Unlike the results of the chi-square tests, Model 2 indicates that only two key variables significantly distinguish the offending groups ($p < .01$). Offenders who are parents or are employed are significantly less likely to be mass shooters than violent extremists. Though only significant at a .1 level, a history of abuse can also be used to distinguish the two groups. That is, an individual with a history of abuse was statistically more likely to be a mass shooter than a homicide offender. All other key variables are null in Model 2. Below I discuss these results in greater detail.

Social Control. According to social control theory, strong bonds to conventional society can deter individuals from crime. While this may be true for common crime and violence more closely related to common crime (i.e., single-victim homicide), social control explanations may not be as relevant in the study of mass shooters and ideologically motivated extremism. Thus, while mass shootings and single-victim homicides may be significantly different in terms of social bonds, I argue that mass shooters and violent extremists may exhibit more similarities.

Parenthood. Parenthood can offer individuals a new perspective, priorities, and increased responsibility. These changes can lead some away from a life of crime. However, I argue that violent extremism and mass shootings are forms of violence that diverge from typical crime due to its expressive and planned nature. In other words, mass shootings and violent extremism are similarly positioned away from other common forms of criminal violence. This notion leads to the hypothesis that violent extremists and mass shooters are not significantly different in terms of social bond measures like parenthood (H1b).

Table 5.3 shows support for this hypothesis. When controlling for other key background characteristics, parenthood remained a significant distinguishing factor (Table 5.3; $p < .05$). For instance, an offender with children is 52% less likely to be a mass shooter than to be a violent extremist. This finding holds after controlling for age, gender, race, and immigration status. Similarly, Pyrooz et al. (2018) conclude that domestic extremists are far more likely to be married and have children than gang members.

Education. Education can be perceived as an investment in individuals' futures and a commitment to prosocial society. In the previous chapter, I found that mass shooters and homicide offenders significantly differ in terms of educational attainment. Because mass shootings and violent extremism are similar crimes, however, I expect the perpetrators of these crimes to not have significantly different educational backgrounds (H2b). Despite past evidence suggesting that terrorists are significantly more educated than mass murderers (Gill et al., 2021), I found only a marginally significant difference in a chi-square test ($p < .1$). Further, I found a nonsignificant impact on education in distinguishing mass shooters from violent extremists ($p = .98$ in Model 1 and $p = .82$ in Model 2). Thus, I support Hypothesis 2b.

This finding suggests that educational attainment alone is not a distinguishing factor between these two groups of violent offenders. When comparing mass shooters to homicide offenders, however, mass shooters were significantly more likely to have at least a high school degree. Thus, education-based efforts to combat more common violence may not deter mass shooters or violent extremists. Scholars should thus work toward identifying and mitigating other potential risk factors, such as psychological issues, social isolation, bullying, or radical beliefs.

Employment. Employment can also be another social bond that deters people from offending. In the previous chapter, I found that, compared to homicide offenders, mass shooters were significantly more likely to be unemployed during their crime. Compared to violent extremists, however, I argue that violent extremists and mass shooters may follow similar paths when it comes to employment-related social bonds. Contrary to Hypothesis 3b, I find that employment rates of mass shooters were significantly lower than employment rates of other violent extremists ($p < .01$). Likewise, the multivariate models also supports this conclusion.

That is, employed offenders are 58-61% less likely to be mass shooters than violent extremists ($p < .01$).

This significant difference can underscore the notion that mass shooters may be motivated by more personal triggering events, such as loss of employment, as opposed to broader ideological reasons. Financial strain and social isolation associated with job loss may be an essential factor in increasing the risk of mass violence. Thus, interventions aimed at employment and social engagement may be a feasible way to curb potential mass shooters.

Military Experience. Military experience can also reduce the likelihood of future offending by offering housing, employment, a path to education, and a sense of community. Notably, mass shooters and violent extremists have more military experience than the general population (19–22% vs 6% of the U.S. adult population; Schaeffer, 2023).

In support of Hypothesis 4b, I found no difference in levels of military experience for mass shooters and violent offenders. To clarify, this finding does not mean that violent extremists follow similar paths as common criminals. This result simply indicates that there are no significant differences between mass shooters and violent offenders in terms of this common protective factor from crime. Notably, both offender groups still have higher rates of military experience than social control theory suggests.

Strain. According to strain theories, strains imposed by competitive societies contribute to criminality. As with variables from social control theories, I argue that common strains would be similar among mass shooters and violent extremists. Unfortunately, PIRUS only offers strain data on childhood SES and history of abuse.

Socioeconomic Status. As discussed, low socioeconomic status can increase the likelihood of crime by imposing stress and a need to get ahead. Using classifications of violence, I argue that mass shootings are closer to violent extremism than to more common violence like single-victim homicides. Thus, I argue that mass shooters and violent extremists will have no significant differences in terms of this measure of strain (H5b).

A chi-square test revealed that mass shooters are significantly more likely to have low childhood socio-economic backgrounds than violent extremists found in the PIRUS database. However, in multivariate models, this variable loses significance. These results indicate that while the two offenders significantly differ in SES, other variables more effectively predicted group membership. Based on the results of the multivariate model, I found support for Hypothesis 5b.

Physical or Sexual Abuse. Physical or sexual abuse can lead to emotional or psychological pain, which can manifest in outward violence. Thus, according to strain theories, abuse can be a correlate of crime. In the previous chapter, I found that this may not be as applicable to mass shooters as it is to ordinary homicide offenders who have significantly lower rates of abuse. However, I argue that because violent extremism and mass shootings are similar in terms of motivation and planning, observed levels of physical and sexual abuse will be similar for the two (H9b).

According to the chi-square test, 34% of mass shooters had a history of abuse compared to only 5% of violent extremists – a significant difference ($p<.01$). However, this variable diminishes in significance in the multivariate model. After controlling for background characteristics and offender demographics, a history of abuse is only significant at a .1 level. Based on this model and significance level of .05, I found support for Hypothesis 9b.

Summary. Overall, the findings in this chapter suggest that mass shooters and violent extremists do not have many distinctions. Using chi-square tests, I found that the two groups significantly differed on only three theoretically driven variables: employment, low SES, and abuse ($p < .05$). After controlling for other variables in a multivariate analysis, only two variables remained significant predictors of group membership: parenthood and employment. Though more research should be conducted, these results suggest a considerable overlap between mass shootings and extremism, which may imply the potential for repurposing counterterrorism measures to combat mass shootings. I speak more about the implications of these results in Chapter 7.

Chapter 6: Assessing Mass Shooting Criteria

In this dissertation, I have depended solely on the Violence Project (VP) as a source of mass shooting data. I argue that this is beneficial as the VP offers the most information on known mass shooters in the United States. However, as discussed in Chapter 1, defining mass shootings is a major topic in the literature as it can greatly impact reported estimates and empirical findings. I thus pay special attention to this matter. In this chapter, I explore the implications of using the mass shooting definition adopted by the VP:

> *"a multiple homicide incident in which* ***four or more victims are murdered*** *with* ***firearms****—not including the offender(s)—within one event, and at least some of the murders* ***occurred in a public location*** *or locations in close geographical proximity (e.g., a workplace, school, restaurant, or other public settings), and the* ***murders are not attributable to any other underlying criminal activity or commonplace circumstance*** *(armed robbery, criminal competition, insurance fraud, argument, or romantic triangle)."* (Krouse & Richardson, 2015, p. 10).

This definition has at least four notable definitional scope features. First, the use of four or more victims killed differs from more inclusive databases that encompass three or more victims shot -not necessarily killed (*Mass Shootings in America*, 2012), three or more victims killed (Follman et al., 2020), or four or more people shot -including the offender (Gun Violence Archive, 2020). While cut-off points may be arbitrary, the "four or more killed" criterion is among the most common (e.g. (Greene-Colozzi & Silva, 2022; The Associated Press, 2023; Washington Post, 2023). Second, the VP database does not include mass murders committed by weapons other than firearms. This means that other forms of mass casualty violence, like bombings and stabbings, are excluded from the analysis. While an offender's victim count and weapon choice may be impacted by an offender's background (e.g., offenders with military backgrounds may have better accuracy and easier access to guns), these two criteria can be largely impacted by situational variables like number of accessible victims or weapon availability.

Third, the VP database only includes mass shootings that occur in public. This criterion is perhaps the most agreed-upon among databases, including the Federal Bureau of Investigation's (FBI) new active shooter database (Federal Bureau of Investigation, 2023).

Fourth, the VP database limits mass shootings to those that cannot be attributed to any other criminal activity. Though motive may be irrelevant to some analyses, it is not uncommon to impose such a criterion, ensuring that mass shootings are not a result of gang violence or armed robbery. Unlike the first two criteria, limiting location type and underlying circumstances allows for more specific etiological assessments. For instance, a mass shooting in someone's residence is more likely to be a familicide, which may be motivated by factors unique to family dynamics. Likewise, a mass shooting attributable to gang violence may be differently explained than the stereotypical "random" mass shooting in public.

Throughout this dissertation, I used this definition to delineate mass shooters from single-victim homicide offenders and violent extremists. While this approach offers an examination of distinct groups, I aim to gain a more detailed understanding of how offender demographics change as their crimes begin to look more like prototypical mass shootings. Thus, the purpose of this chapter is to understand how the offender pool fluctuates as each additional criterion for a mass shooting is met.

I am unaware of any study to date that has dissected mass shooting definitions and has tested each element's impact on the offender pool. Accordingly, this analysis is much more exploratory than confirmatory – guided by the following research questions:

RQ1: How does each criterion of the Violence Project's mass shooting definition impact mass shooting counts?

RQ2: How does the number of met criteria impact the demographics of a mass shooter offender pool?

Despite debates surrounding mass shooting definitions, little if any research has been done to examine specific criteria and explore their impact on a sample. This type of investigation is crucial as it inspects a commonly used definition in the mass shooting literature and identifies definitional elements that distinguish mass shootings from all other homicides.

Data Source

To assess the impact of VP's definition, I compared mass shooters to homicide offenders meeting only some of the criteria used in this most common definition of mass shooting. Fortunately, the National Incident-based Reporting System (NIBRS) offers information on an incident's victim count, location, weapon, and underlying circumstances – all four criteria of a mass shooting.

NIBRS is considered the United States' national standard for law enforcement crime data reporting (Bureau of Justice Statistics, n.d.). NIBRS offers detailed information about victims, offenders, and circumstances of police-reported incidents. Unlike the Violence Project's database which relies on open-source data, NIBRS is based solely on official law enforcement documentation. After a crime occurs, police officers report information on the crime's date, time, and place, the type of offense, in-depth demographic data about each victim and perpetrator implicated in the crime, and the relational dynamics between each victim and perpetrator. Additionally, the officers report on incident specifics such as victim injuries, weapon type, presence of alcohol or narcotics, property damages, and resolution. Notably, however, offender data are available only when the perpetrator is known or arrested. Data are collected and published annually by the Bureau of Justice Statistics.

NIBRS is intended to be a replacement for the FBI's Uniform Crime Report (UCR). With 2021 marking the first year where NIBRS was used as a substitute for the UCR, the transition to the new system is still underway. As a result, NIBRS poses some limitations in terms of coverage. As of May 2023, NIBRS covers 77% of the U.S. population (Bureau of Justice Statistics, n.d.). Nonetheless, many criminologists rely on NIBRS data to conduct empirical studies. I thus explore NIBRS's use in studying mass shootings by attempting to isolate crimes between 2018 and 2022 that closely align with VP's mass shooting definition.

Analytical Strategy

For this analysis, I compared several groups of offenders based on their likelihood of qualifying as mass shooters. I began by focusing on NIBRS incidents in which the first reported offense is "Murder/Nonnegligent Manslaughter[3]." Using five years of NIBRS data, I filtered homicide cases based on four key mass shooting criteria from the VP mass shooting definition: 1) use of a firearm, 2) a public setting, 3) death of four or more victims, and 4) absence of other crimes. I create five groups using this method: 1) homicide offenders meeting none of these

[3] NIBRS allows officers to report various crimes for one incident. For instance, an offender can break into a home, rob the owners, assault one victim, and kill another. Despite this, if murder was involved, it is supposed to be reported as the first offense of the case.

criteria, 2) homicide offenders meeting one criterion, 3) homicide offenders meeting two criteria, 4) homicide offenders meeting three criteria, and 5) homicide offenders meeting all criteria (mass shooters according to the VP data).

By separating offenders in terms of how close they are to being classified as mass shooters, I can identify how definitions impact the size of the study sample and consequently change the sample's characteristics. Further, using NIBRS to create a sample of mass shooters can help inform the field about the applicability of official data to supplement open-source databases. Below, I provide descriptive characteristics for each group and conduct chi-square tests to examine how these groups differ in terms of demographic characteristics like gender, sex, and race.

Results

Between 2018 and 2022, NIBRS reports 50,531 murder incidents. This count is notably smaller than UCR and CDC estimates because NIBRS is still working to improve coverage. For instance, the CDC's National Vital Statistics System reports 24,849 homicides for the year 2022 alone. Of the 50,531 murders reported by NIBRS, only .1% met all four criteria to be labeled a mass shooting. That is, NIBRS reports 58 mass shootings between 2018 and 2022. Despite using the same criteria as the Violence Project, this estimate conflicts with the VP database which reports 34 mass shootings in the same time frame. I will discuss this issue further in the limitations section of the closing chapter.

While only .1% of murders were defined as mass shootings, 39% met three requirements, 43% met two, 17% met one, and 2% met none. Plainly, 2% of NIBRS homicides were strictly single-victim homicides committed in conjunction with another crime, in private, and without a firearm. These findings highlight that 98% of murders meet a least one inclusionary criterion of a mass shooting. Table 6.1 offers insight into which criterion is seen more commonly.

Table 6.1. Percentage of NIBRS sample that meets mass shooting criteria, 2018-2022.

Criteria	%
% with 4+ Fatalities	0.38
% with Firearm Used	75.95
% that Occurred in Public	53.18
% Unrelated to Other Crime	88.51

As mentioned, most homicide incidents met at least one requirement to be classified as mass shootings. As displayed in Table 6.1, 76% of all homicides were committed with a gun, 53% occurred in public, and 89% were unrelated to other commonplace crimes. The most exclusionary criterion is the four or more fatality count as less than 1% of homicide incidents met this criterion.

Of all murder incidents, 93% had a single victim and 6% (3,167) had two or three fatalities. Notably, if the fatality threshold is moved from four to three, .4% of murders (187) would be classified as mass shootings instead of just .1%. In other words, the 4+ fatality criterion is responsible for excluding 129 cases that are captured by other common estimates. This finding explains why fatality counts are so fiercely debated in the mass shooting literature. A fatality threshold of four or more severely limits the number of cases and potentially excludes similar events that simply have one less death. Nonetheless, researchers need to draw the line somewhere and perhaps focusing on high-fatality events ensures more complete available data as a higher proportion of total cases are reported when there are more victims (Schildkraut et al., 2018).

Other criteria produced substantial changes to the mass shooting samples. If the weapon criterion was removed to study public mass murders in general, the sample of eligible cases increases from 58 to 69. If, on the other hand, the mass shooting location was not of importance, this estimate would increase to 125. Finally, if the classification of public mass shootings was not limited to those unrelated to other criminal activity, there would be 71 incidents between 2108 and 2022 according to NIBRS.

To answer the first research question then (How does each criterion of the Violence Project's mass shooting definition impact mass shooting estimates?), I found that mass shooting definitions undoubtedly play a role in shaping estimates. I highlighted four conditions that need to be met for a murder to be considered a mass shooting in the VP data. Of these four conditions, the fatality threshold is the most impactful as it is the most limiting. If this criterion is reduced by just one victim, total mass shooing cases see a 222% increase. This increase in sample size can be even greater in databases that relax their thresholds to victims who were injured but not necessarily killed. Importantly, this brief descriptive analysis only looked at official data to study changes in mass shooting estimates. As discussed in Chapter 2, differences in methodology or data collection can also contribute to differences in estimates.

Offender Descriptive Statistics

In the previous section, I explored how the VP's mass shooting definition influences overall estimates. In the remainder of this chapter, I explore how this definition impacts the demographics of the resulting samples. Of the 50,531 homicide incidents, 79% were committed by a single offender, 13% were committed by two offenders, and 8% were committed by three or more. While all offenders play a crucial role, for this analysis, I focused solely on the characteristics of first-reported offenders. Unlike other databases focused entirely on reporting mass shooter characteristics and life histories, NIBRS contains very little detailed information on the offender's background. As mentioned, NIBRS can only report on known or arrested offenders. This analysis was thus limited to the offender's age, gender, and race. To address the second research question, Table 6.2 displays these descriptive statistics for each NIBRS group along with mass shooters captured by VP between 2018 and 2022. Note that percentages for NIBRS were heavily impacted by missing data.

Table 6.2. Demographics of Violence Project Mass shooters and each NIBRS homicide group based on mass shooting criteria met, 2018-2022.

	VP Shooters	**4 Criteria**	**3 Criteria**	**2 Criteria**	**1 Criterion**	**0 Criteria**
n	34	58	19,513	21,422	8,553	985
% Male	94.12	75.86	58.17	67.55	69.37	73.60
% White	58.82	44.83	16.91	32.53	46.71	59.90
% Black	26.47	34.48	42.04	39.65	34.19	28.63
Avg. Age	31.71	30.55	29.48	33.81	34.38	34.59

Noticeably, offenders in NIBRS that can be classified as mass shooters looked somewhat different than those found in the VP mass shooter database. Of the 58 incidents in NIBRS that met all criteria outlined by the VP definition, I was unable to match 38% (22) to VP cases. I discuss this issue in greater detail in the following chapter, but in short, NIBRS faces major limitations due to poor coverage or potentially inaccurate data.

Among the 58 NIBRS mass shooters, 76% were male, 45% were White, and 35% were Black. The average age among these shooters was 31. Notably, the offender group projected to look most like the VP sample appeared different in many ways. A greater percentage of mass shooters in VP's database were male compared to the NIBRS sample. Likewise, VP mass shooters had a higher percentage of White people and a lower percentage of Black people. The percentages of all other races remained relatively small. While average age appeared fairly similar, these distinctions highlight the potential impact of missing data in NIBRS and using different data collection methodologies.

Among murder incidents that met between one and three criteria of a mass shooting, there did not appear to be a trend in demographics. 10,675 incidents met one criterion of a mass shooting definition. Among these, only four (.05%) resulted in four or more victim deaths, 22% were committed with a firearm, 6% occurred in public and 72% were unrelated to another crime. Roughly 70% of these incidents were committed by males with an average age of 34. The first offenders were 47% White and 34% Black. Of the incidents meeting two components of a mass shooting, .2% had four or more victims, 79% involved a firearm, 32% were in public, and 89% were unrelated to other crimes. Perpetrators of these crimes were 68% male, 33% White, 40% Black, and have an average age of 34. Finally, of the offenders that met three criteria, .5% killed four or more victims, 99.9% used a firearm, 99.7% committed their crimes in public and 99.9% committed their murder in the absence of another crime, underscoring that the hardest criteria to meet is the fatality count. This group had a smaller percentage of males (58%) and White individuals (17%) than previous groups.

Of all incidents classified as murder, 985 met zero criteria for a mass shooting. The first offenders of these crimes were 74% male, 56% White, and had an average age of 35. These offenders commonly used knives (25%), personal weapons like hands, feet, or teeth (17%), and some form of drugs (13%). Fourteen percent of these incidents were committed with an unknown weapon with all involving one victim in a place of residence.

Comparative Analysis

To further explore how the sample and its demographics change with each additional met criterion, I conducted several statistical tests. Specifically, I conducted several chi-square tests assessing the differences in offender gender and race between the offenders who meet all mass shooting criteria and all other groups. Due to a large amount of missing data (71%), I excluded age from this analysis. Table 6.3 displays the results of these tests[4].

Table 6.3. Chi-square results comparing each group to offenders with four criteria met.

	4 Crit.	**3 Criteria**		**2 Criteria**		**1 Criterion**		**0 Criteria**	
	Mean	Mean	p-value	Mean	p-value	Mean	p-value	Mean	p-value
% Male	95.65	93.90	.62	89.25	.16	80.93	.01**	80.38	.01**
% White	56.52	28.22	.00***	43.95	.09*	55.61	.90	65.70	.20
% Black	43.48	70.17	.00***	53.57	.17	40.70	.70	31.40	.09*

*p<.1, **p<.05, ***p<.01

Chi-square tests revealed that mass shooters significantly differed from other murderers in terms of gender as they meet fewer criteria. Of mass shooters with known gender, 96% were male. As fewer conditions for mass shootings are met, the offender pool became less male-dominated. Among murderers who met zero mass shooting criteria, 80% were male – a significant difference from those meeting four criteria. This difference indicates a significant association between group membership and gender (p<.05).

[4] Unlike the descriptive statistics in the previous section, chi-square results did not incorporate missing observations

I could not find a similar trend for race, however. Percent White and percent Black fluctuated without a pattern as each additional criterion was met. Mass shooters whose race was known to authorities were 57% White and 43% Black. There were no known mass shooters of any other race. Curiously, only offenders who met one less criterion significantly deviated from these statistics with 30% being White and 70% being Black ($p < .01$). To understand why, I explored each criterion in terms of race. Table 6.4 reports the percentage of White and Black offenders who met each condition.

Table 6.4 Percentage of NIBRS sample that meets mass shooting criteria, by race.

Criteria	**White**		**Black**		**Chi2**
	Mean	SD	Mean	SD	p-value
% with 4+ Victims	0.55787	7.44846	0.34131	5.83238	0.00***
% with Firearm Used	60.3979	48.9085	81.3532	38.9494	0.00***
% that Occurred in Public	39.0778	48.7941	54.6153	49.7878	0.00***
% Unrelated to Other Crime	12.2933	32.8372	12.4379	33.0022	0.873

*p<.1, **p<.05, ***p<.01

Of all first-reported murderers with known races, 14,878 were White and 19,923 were Black. 0.2% of White offenders versus 0.1% of Black offenders were classified as mass shooters. In the previous section, I found that the condition excluding most offenders from being labeled as mass shooters is the fatality threshold. Considering this, I expect the significant difference in race between the four criteria group and the three criteria group to be attributable to the fatality count. In other words, I expect White murderers to more frequently pass the four or more victim threshold than Black murderers. Table 4.4 reveals that this is the case.

In addition to the fatality count, Black and White offenders significantly differed in terms of weapons and location choice. Murders committed by Black offenders were significantly more likely to be committed with a firearm and significantly more likely to occur in public than those committed by White offenders. Ultimately, this finding suggests that changes to these criteria will result in changes to the composition of the resulting samples.

The purpose of this analysis is to assess the impact of a mass shooting definition on sample size and demographics. I found that the four criteria used to distinguish mass shootings from other forms of murder, especially the fatality threshold, impacted the number of mass shootings reported. Further, I found that this change in sample size resulted in different demographics of the offender pool. Specifically, the sample became more male-dominated as more criteria were imposed. I also found that three of the four criteria significantly impacted the sample's racial composition.

In addition, this investigation uncovered perhaps a more interesting finding. In Chapter 1, I explained that one challenge of studying mass shootings is data availability. Much of the literature relies on open-source databases. Criminologists, however, often highlight the need to incorporate both official and unofficial data to create a comprehensive view of crime. I thus also use this analysis to assess the applicability of official police data in the study of mass shootings. While NIBRS is perhaps the only official data source with the power to delineate mass shootings from other homicide offenders, I found that it does not always match estimates from open-source mass shooting databases. Between 2018 and 2022, NIBRS failed to report various known mass shootings because of low participation from agencies around the nation. Further, NIBRS reported more mass shootings than open-source databases relying on the same definition (I speak more about this issue in the following chapter). While it is unclear if this is due to the media's inability to report on all mass shootings or due to inaccurate NIBRS data, future mass shooting researchers should note these discrepancies.

Chapter 7: Conclusions and Discussion

The overarching goal of this study was to better understand mass shootings and their place in criminology. While they are a relatively new phenomenon, mass shootings have substantial and growing impacts on individuals and communities throughout the United States (Brodeur & Yousaf, 2022; Cacciatore & Kurker, 2020; Lowe & Galea, 2017) Despite the rising urgency and need for intervention, I argue that mass shootings have not been allotted enough attention by the criminological community as very few have provided theoretically driven solutions backed by empirical studies.

Describing Mass Shooters

I began this research by exploring the offender pool in great detail. Specifically, I described mass shooters, their motives, and how they change over time. From this analysis, I gleaned some descriptive information. First, while the majority of mass shooters between 1966 and 2023 were White US-born unmarried men, these characteristics shifted over time as more non-White immigrant women began to enter the sample. Second, mass shooters commit their murders for a variety of distinct reasons. Unlike criminals motivated by financial gain or fueled by spontaneous quarrels, mass shooters' diverse motives make it hard to identify a singular path to mass violence. Third, mass shooter motives change over time. Mass shootings stemming from employment issues peaked in the 1990s and were eventually overshadowed by mass shootings stemming from racism and interpersonal conflict. Thus, I argue that scholars and politicians should be mindful of how social and temporal trends influence potential mass shooters. Finally, I found that mass shooters who kill for different motives have differing background characteristics. This finding is crucial as it indicates that while a single mass shooter profile may be impossible, the potential exists for distinct profiles based on mass shooter motives.

In the absence of a theoretically driven mass shooting literature, the temptation is to approach mass shootings in the same way scholars approach more common forms of violence, such as single-victim homicides. Acknowledging these offender types as fundamentally different in their paths to violence is crucial. Using etiological theories of crime, I identified several key background characteristics and compared mass shooters to single-victim homicide offenders and violent extremists.

Comparing Mass Shooters to Perpetrators of Homicide

In Chapter 4, I focused on the comparison between mass shooters and homicide offenders and concluded that mass shooters significantly differ from incarcerated homicide offenders in numerous ways. First, mass shooters had significantly higher rates of educational attainment as measured by at least a high school degree or equivalent. This result confirms prior literature reporting high education rates among similar offenders (Capellan & Gomez, 2018). Second, as past mass shooting studies reveal (Clemmow et al., 2022; Gill et al., 2021), military experience among mass shooters was significantly greater than military experience among single-victim homicide offenders. This finding is alarming as military personnel are also overrepresented in mass shootings compared to the general population (23% of mass shooters compared to 6% of U.S. adults; Schaeffer, 2023). Future studies should explore why this occurs and how researchers can propose preventive measures. Third, mass shooters were less likely to come from single-parent households, have parents with a substance use or criminal history, and have evidence of abuse. Finally, mass shooters were significantly less likely than homicide offenders to be parents or employed during their crimes. I argued that this is a result of several mass shootings ($n = 41$) that were inspired by employment issues. Ultimately, these findings suggest that strains commonly found in homicide offender samples are not as typical among mass shooters.

In all, these findings confirm that mass shooters are significantly distinct from homicide offenders in terms of several etiological variables. Consequently, criminological theories used for common crime and traditional forms of homicide may not be as applicable to mass shootings. In turn, detection, prevention, or intervention measures used to combat common crimes may not be as effective in combatting mass shootings.

Comparing Mass Shooters to Perpetrators of Violent Extremism

In Chapter 5, I focused on the comparison between mass shooters and violent extremists. Using PIRUS, I compared mass shooters to a sample of radicalized violent extremists. After excluding overlapping cases, I found that the characteristics of mass shooters were more similar to violent extremists than they were to ordinary homicide offenders. Specifically, through multivariate analysis, I was unable to conclude that education, military service, low childhood SES, and history of abuse significantly delineate the two groups at a 95% level of confidence. However, I found that, compared to violent extremists, mass shooters are less likely to be employed. As with the previous analysis, this finding could be explained by mass shooters being more often motivated by triggering events like job loss.

In addition, I found that mass shooters were more likely to experience low childhood SES and abuse than violent extremists. However, the role of SES and abuse were insignificant when predicting group membership in a multivariate model. I also found that mass shooters, when compared to violent extremists, were significantly more likely to be parents. This is the case even after controlling for the offender's age, gender, race, immigration status, and the year of the attack. This finding directly contradicts my expectation that mass shooters and violent extremists are similar in terms of various background characteristics. This result is surprising and warrants further investigation.

Assessing Mass Shooting Criteria

Finally, one of the most common criticisms of the mass shooting literature is that there is no uniformly accepted definition of a mass shooting. The objective of Chapter 6 was to understand how a common mass shooting definition shapes the size and characteristics of the offender pool. I used official data from NIBRS and found that conditions imposed by the VP mass shooting definition do alter the number of mass shootings available for study. Specifically, the fatality threshold plays the greatest role in shaping a mass shooting estimate. For instance, 39% of homicide incidents between 2018 and 2022 met three criteria for mass shootings. Of these, only .5% killed four or more victims, indicating that, 99.5% of cases met all other conditions for a mass shooting. As a result, only 58 (.1%) of all murder incidents qualified as mass shootings. Explicitly, lowering the fatality count from four to three results in a 222% increase in the NIBRS mass shooters sample. Though challenging, future research could explore the effects of dropping this arbitrary fatality threshold altogether and focusing on mass shooters as defined by their intentions rather than their success.

Further, I found that the VP criteria impacted the demographic profile of the resulting sample. Specifically, as more conditions are required to define a mass shooting and as the sampling pool was filtered down, the sample's percentage of male offenders increased. Additionally, offenders who met three criteria were significantly more likely to be Black than offenders who met all four criteria. A deeper investigation revealed that victim count, weapon type, and location type, played a significant role in this finding. In all, these results underscore how sensitive mass shooting estimates and studies are to slight differences in definitions. Notably, a more significant discovery from this analysis appears to be the limitations of NIBRS.

Limitations

In Chapter 6, I use NIBRS, the only source of police data to measure common conditions of mass shooting definitions. Even though NIBRS is now the official source of crime data for the United States, I found that it poses significant limitations for mass shooting scholars. NIBRS is limited in offender variables and has considerable missing data. Regarding offender demographics, NIBRS only offers age, gender, race, and ethnicity. Even so, 27% of cases were missing the first offender's gender, 29% were missing the first offender's race, and an alarming 71% were missing the first offender's age. These data gaps can have a substantial influence on descriptive and inferential statistics.

Perhaps more importantly, not all law enforcement agencies report their statistics to NIBRS. For instance, according to the NIBRS website, this database only covers 32% of Florida's population as of 2023. As a result, many highly publicized mass shootings are excluded from the sample. Of the 33 mass shootings reported by VP, I could only match 16 to NIBRS incidents. The remaining 17 mass shootings were absent from NIBRS, presumably because corresponding agencies were not participating in the program at the time. These missing incidents include notable cases like the 2018 Parkland school shooting, the 2018 Thousand Oaks mass shooting, and the 2019 Midland Odessa shooting.

Further, I found that NIBRS mass shootings did not always align with other databases. Of the 58 incidents in NIBRS that met all criteria outlined by the VP definition, I could not match 22 to the VP's mass shooter database. I can offer two possible explanations for this finding. First and least likely, the VP failed to capture 22 mass shootings that occurred within five years. I suggest that this is improbable as mass shootings in public resulting in four or more deaths are highly sensationalized in the United States (Schildkraut et al., 2018; Thompson et al., 2019) and are unlikely to escape detection. Second, this discrepancy may be a result of issues with NIBRS data. I investigated unmatched NIBRS cases that met the definition of a mass shooting and found that they received little to no media coverage. If the media did cover these incidents, I found information conflicting with NIBRS, such as lower fatality counts or connected crimes.

Thus, while mass shooting research can benefit from more accurate official records, NIBRS has room to improve. Although it has existed for decades, NIBRS has only recently become the primary source for official crime data, with the FBI fully transitioning from the UCR in 2021. Still, the program suffers from low participation with coverage of roughly 77% of the U.S. as of May 2023 (Bureau of Justice Statistics, n.d.). Though this substantially improved from coverage of 29.3% in 2013 (McCormack et al., 2017), NIBRS remains inadequate in providing a comprehensive profile of mass shootings in the United States. Until NIBRS improves its scope, researchers who seek to gain an estimate of mass shootings remain dependent on other sources like the VP mass shooter database or the Gun Violence Archive.

Undoubtedly, this dissertation faces several other limitations. In Chapters 4 and 5, I examined how mass shooters compare to homicide offenders and violent extremists in terms of commonly studied predictors of crime. Due to the nature of these data, I could not formally test the theories discussed in this study. Each theory includes some form of internal or subjective processes. For example, people must value their social bonds for the bond to affect criminal offending. Similarly, individuals must perceive a situation as adverse or unjust for it to impact their emotional and behavioral responses. The data available for mass shooters, homicide offenders, and violent extremists do not capture these psychological variables. Thus, I cannot conclude that any key variables directly influence the commission of a mass shooting or other forms of violence. Until more detailed interviews are conducted, future scholars may face similar limitations.

Another limitation of these analyses concerns the predictor variables and model specification. I use logistic regression models to examine the impact of a set of theoretically relevant variables on group membership. However, there are other variables that may contribute to the differences between mass shooters and other violent offenders such as mental health, fame-seeking motives, or suicidality. Additionally, though the included variables may lead to issues with multicollinearity, they are theoretically relevant and should not be excluded from the analysis. I used a Variance Inflation Factor (VIF) test to assess collinearity, but its utility in the context of a nonlinear model may be limited.

Further, there is always the possibility that the included variables may have been better specified. For instance, I include age as a control variable for each comparison's final model. It is important to note that mass shooter ages displayed a bimodal distribution with many shooters either being in their early-20s or mid-40s. Thus, a non-linear specification of this variable may have been better at capturing the nuances of this relationship. Likewise, the control variable for year could have been respecified to capture the impact of notable mass shootings in time. For example, the Columbine shootings may have had a lasting impact on mass shootings that followed. Finally, it is important to note that the small number of mass shooting observations reduces the statistical power of my analyses. Consequently, these findings should be interpreted cautiously.

Importantly, these results are not usable as a risk assessment. In this research, I compared mass shooters to samples of incarcerated homicide offenders and known violent extremists. While this strategy offers insight into how mass shooters differ from other types of violent criminals, the results do not show whether certain traits are more prevalent among these individuals than in the general population. Lankford et al. (2021) attempted this analysis by using data from the U.S. Census Bureau, Centers for Disease Control and Prevention, National Institute of Mental Health, Department of Health and Human Services, Bureau of Labor Statistics, and Pew Research Center, along with previously published research; however, these researchers remained constrained with the variables they could explore. Future work can incorporate survey data from randomly selected samples of the general population to assess how mass shooters compare to the nonoffending population.

Further, several limitations arise regarding the types of data sources. While the VP database, the SPI, NIBRS, and PIRUS all represent outstanding sources of information for their corresponding samples, data collection methods vary widely among them. VP and PIRUS rely on publicly available information to code each variable of interest. Alternatively, NIBRS relies on directly recorded information from law enforcement, and SPI uses surveys of incarcerated individuals and, thus, relies on self-reported information. As a result, estimates for mass shooters, homicide offenders, and radicalized individuals may differ greatly depending on data collection methods.

Finally, given the nature of the homicide offender and violent extremist samples, this dissertation is limited in generalizability and can only make conclusions about known and incarcerated murderers and known radicalized extremists. Differences in clearance rates between mass shootings and homicides, for instance, suggest that while I am analyzing all successful mass shooters, I can only compare them to homicide offenders who got caught and sentenced for their crimes. Additionally, given the statistical rarity of mass shootings, new shooting events have the power to substantially influence the current findings. Despite the various challenges of studying mass shootings, this dissertation has substantial implications for the study of mass shootings.

Implications and Future Directions

In this study, I examined the definitions of mass shootings and described mass shooters over time. This contributes to the broader discussion on the operationalization of mass shootings. I compared homicide offenders meeting all four criteria of VP's mass shooting definition to those who meet three, two, one, and none. Though the results are weak, this analysis represents the first of its kind and sheds light on the strengths and limitations of a prominent data source for criminologists: NIBRS.

Despite its relevancy in criminology, I note some key limitations of NIBRS in the study of mass shootings. NIBRS provides incident-based information on various crimes, but it was not intended to provide comprehensive life histories of offenders. As a result, only demographic factors like gender, age, and race/ethnicity are available for analysis. Further, while most murder suspects are known early on in the process, not all of this information is known to law enforcement agencies when inputting data into NIBRS. Consequently, these variables often have a large and unwieldy volume of missing data. Nonetheless, NIBRS is the only source of official national data that includes information on the most common criteria for mass shootings. As NIBRS improves its coverage, mass shooting scholars can begin to integrate these data into their studies.

More importantly, I examined the distinctions between perpetrators of mass shootings, homicides, and extremist attacks. Specifically, I compared mass shooters to homicide offenders and violent extremists in terms of background characteristics stemming from social control and general strain theory to discern whether their life trajectories exhibit distinct patterns. I found significant differences between mass shooters and single-victim murderers and concluded that they exhibit divergent paths to the two lethal forms of violence. Namely, mass shooters do not exhibit the common correlates of crime as outlined by contemporary theories. This conclusion has various implications for mass shooting research and policy.

Currently, the majority of empirical studies on mass shootings focus on the legal/political, psychological, or economic consequences of these events (e.g., Brodeur & Yousaf, 2022; Croitoru et al., 2020; Lowe & Galea, 2017; Luca et al., 2020; Metzl & MacLeish, 2014; Shultz et al., 2014). While some analyze and describe general patterns of mass shootings (Duwe, 2020; Schildkraut et al., 2018; Silva, 2020), very few attempt to explain their origins using criminological theory. This study contributes to the criminology literature by focusing on the extent to which less common types of criminal violence (mass shootings and extremist political violence) are explained by existing criminological theory. Aside from a few studies that investigate the role of environmental factors on mass shooting severity (Freilich et al., 2020; Schildkraut et al., 2019; Silva & Greene-Colozzi, 2020), criminological theories are rarely applied to such extreme forms of violence.

Although some scholars have empirically explored the differences between mass shooters and homicide offenders (Fridel, 2022; Lankford et al., 2021), they did not integrate key criminological concepts. In the current study, I expanded previous studies by focusing on and integrating etiological explanations of crime. The results of this study imply that etiological correlates of crime are not as present among mass shooters as theory and previous studies suggest.

As Gottfredson and Hirschi (1990) argue, if a theory is a general theory of crime, then explanations derived from the theory should encompass all crime, including mass shootings. I conclude that common variables used in stain and social control theories are significantly different between mass shooters and homicide offenders. Although I did not directly test the theory, the results showed that variables critical to the theories are significantly different between mass shooters and homicide offenders. This finding suggests that factors theorized to contribute to crime are not as strongly presented among mass shooters and thus may not equally influence the commission of a mass shooting. Thus, I argue that caution should be taken when generalizing theories to this form of violence.

While mass shooters are, in fact, murderers, they exhibit significantly divergent backgrounds from those committing single-victim homicides. Consequently, methods used to combat traditional forms of violence may be ineffective in deterring mass shooters. For example, interventions focused on decreasing violence through educational programs may not be effective in reducing mass shootings as mass shooters already have significantly higher rates of high school attainment than traditional murderers. Likewise, theories used to explain crime may not be universally applicable to these distinct types of violent offenders. Thus, theories tailored to mass shooters could be more applicable for effective policy recommendations regarding mass shooting events.

Finally, this study places mass shootings in the context of extreme violence. I find that mass shooters and violent extremists have few significant differences. This finding further supports Gill et al.'s (2021) finding that mass shooters and terrorists are generally "similar people, with similar mobilization pathways, committing similar forms of violence with slightly dissimilar motivational structures" (Gill et al., 2021, p. 5). This conclusion implies that mass shooters may potentially share greater overlap with an offender type that already experiences attention from criminologists. Consequently, the applicability of counterterrorism measures to reduce mass shootings should be explored further.

The mass shooting literature is relatively new, but criminologists have the power to inform knowledge about this extreme form of violence. In many ways, scholars have shown that criminology can be applied to similar phenomena like terrorism or extremism (LaFree & Freilich, 2016b). Terrorism is a growing part of the field, with mainstream criminologists increasing their publication of research on political extremism (LaFree & Yanez, 2023). Using the findings from this study, academics could acknowledge the potential differences between mass shootings and other crimes yet accept the phenomenon as one that could still be studied through a criminological lens.

Criminology incorporates concepts from various disciplines, including psychology, economics, neurology, sociology, and political science. While this study focuses solely on the individual level, future work could take advantage of the multidisciplinary nature of criminology to study mass shootings. For instance, an offender's behavior does not exist in a vacuum—their environment shapes it. To better understand mass shootings, scholars could investigate the role that social structural factors, like unemployment rates, poverty, and racial heterogeneity, have on the etiology of mass shootings. Further, scholars can explore the role of an offender's mental health or neurological issues in the commission of their crime. This dissertation shows that mass shootings are not simply a form of homicide and warrant further investigation. Thus, regardless of the approach, future work on mass shootings is necessary to create efficient solutions.

Mass shootings are an unnecessary and taxing phenomenon in contemporary American culture. Though not as common as single-victim homicides, the devastating impact of a single mass shooting is undeniable. Using the most conservative estimates, mass shooters have ended the lives of 1,391 individuals in the past six decades (Peterson & Densley, 2023). Each of these lives represents a family who thought their loved one would be safe at school, the mall, a grocery store, or any other public place but was abruptly proven wrong. Time and time again, survivors, families, and communities are left with physical and mental scars, along with thoughts and prayers from their politicians. New and innovative research can offer decision-makers tailored and theoretically driven tools to combat these senseless acts of violence.

Appendices

Appendix 1

Multicollinearity between variables could not only make it harder to isolate the unique contribution of each variable but also inflates the standard errors, making coefficients less accurate. To assess the collinearity of my key variables, I present VIF coefficients in Table 6.5. According to the Variance Inflation Factor (VIF), collinearity among variables is not a significant issue (VIF<10).

Variance inflation factor test of model independent variables.

Variable	**VIF**	**1/VIF**
Age	1.37	0.727
Male	1.35	0.742
Heterosexual	1.25	0.802
High School Degree	1.23	0.815
Year	1.21	0.826
Low Childhood SES	1.21	0.828
Military Service	1.2	0.832
Parental Criminal History	1.16	0.863
White	1.14	0.879
Single-Parent Household	1.12	0.891
Parental Criminal History	1.1	0.909
Employed	1.08	0.923
Immigrant	1.07	0.938

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